MOJAVE DESERT
AIR QUALITY MANAGEMENT DISTRICT

NSR/FOP Evaluation Document

Preliminary Determination/Decision - Statement of Basis

for

Modification to

FOP Number: 13300611

For:

National Aeronautics & Space Administration

Facility:

NASA Goldstone Deep Space Communications Complex

Facility Address:

Goldstone Lake
Fort Irwin, CA 92311

Document Date: November 30, 2017
Submittal date to EPA/CARB for review: December 6, 2017
EPA/CARB 45-day Commenting Period ends: January 20, 2018
Public Notice Posted: December 11, 2017
Public Commenting Period ends: January 10, 2018
Permit Issue date: On or about January 21, 2018

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A. Introduction

1. Application and Setting

NASA Goldstone Deep Space Communications Complex (Goldstone)**,** Federal Operating Permit (FOP) number 13300611, located near Goldstone Lake in Fort Irwin, California is a deep space communications facility. Because of the critical nature of the mission and the remoteness of the facility, uninterrupted electric power is critical. Goldstone is located outside the Federal Ozone Nonattainment Area (FONA) of the District.

The Mojave Desert Air Quality Management District (MDAQMD or District) received a complete application for three new HVLP Spray Guns and one new Air Assist & Airless Finishing Spray System on August 2, 2017 (please see Appendix A for submitted application).

Goldstone is defined as a federally Major Facility pursuant to District Rule 1201 – *Federal Operating Permit Definitions,* as this facility has a Potential to Emit (PTE) greater than 25 tons per year or more of NO_X. The proposed modifications classifies as a Significant Modification to Goldstone's FOP. Pursuant to District Rule 1205 – *Modifications of Federal Operating Permits*, section (B)(2), this document serves as the preliminary determination to issue Goldstone the modified FOP, inclusive of the proposed changes. This preliminary determination was submitted to USEPA and CARB for review on December 6, 2017; and, it will be noticed for public review on December 11, 2017.

Additionally, Goldstone is defined as a NSR Major Facility pursuant to District Rule 1301 – *NSR Definitions*, as the facility has a PTE greater than the threshold amounts specified for NO_X and PM_{10}. The proposed equipment is, therefore, subject to BACT and Offset requirements for the Nonattainment Air Pollutant/Precursors of NO_X and PM_{10}. The proposed modification does not constitute a NSR Major Modification, as it does not results in a significant Net Emissions Increase of any Regulated Air Pollutant [District Rule 1301 (EE)]. This document also serves as the preliminary decision on the application submitted by Goldstone pursuant to District Rule 1302 – *New Source Review Procedure*, section (D)(1).

2. Description of Project

The applicant proposes to the following applications for Permit Units and subsequent additions to the FOP as follows:

Table 1 – *Proposed Modifications*

District Permit	Equipment Description	Proposed Modification/Application
P012830	Portable Spray Gun - HVLP	Application for new equipment.
P012831	Portable Spray Gun - HVLP	Application for new equipment.
P012832	Portable Spray Gun - HVLP	Application for new equipment.
P012833	Portable Spray System – Air Assisted & Airless Finishing	Application for new equipment.

Goldstone is proposing the addition of the above listed spray equipment in order to periodically paint the deep space communication antennae located at the facility. The District defines this type of painting as "Architectural." The District is not exempting this coating equipment pursuant to District Rule 219(E)(13)(v) because permitting the equipment will allow Goldstone the operational flexibility to use the spray equipment for use other than architectural surface coatings and/or business structures; and, additionally, pursuant to District Rule 219(E)(15), the APCO may require a permit for any equipment that is specifically exempt under Rule 219 if the equipment has a Potential to Emit Toxic Air Contaminants, which is the case for the proposed equipment in this permitting action.

B. Analysis

1. Determination of Emissions

[District Rule 1302(C)(1)]

District Rule 1304 – *Emissions Calculations*, provides the procedures and formulas to calculate emission increases and decreases for new or modified Facilities. Section (A)(1)(a)(iii), of this rule, states that District Rule 1304 shall determine the Potential to Emit of new or modified Facilities and Emission Unit(s). Pursuant to District Rule 1304, the emission change for a new or modified Facility or Emissions Unit(s) shall be calculated, in pounds per day, by subtracting Historic Actual Emission from Proposed Emissions (section (B)(1)(a)):

Emissions Change = (Proposed Emissions) – (Historic Actual Emissions)

For a modified Facility, such as in the case of Goldstone, Proposed Emissions shall be equal to the Potential to Emit as defined in District Rule 1301 – NSR Definitions, section (UU). Section (UU) of District Rule 1301 specifically states that Potential to Emit is the maximum capacity of a Facility or Emissions Unit(s) to emit any Regulated Air Pollutant under its physical and operational design. It also states that any physical or operational limitation on the capacity of the Facility or Emissions Unit(s) to emit an Air Pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processes, shall be treated as part of its design only if the limitation or the effect it would have on emissions is Federally Enforceable.

District Rule 1304, section (D)(2)(a)(iv), allows Historic Actual Emissions, in the case of a modified Facility, as in the case of Goldstone, to be equal to the Potential to Emit for that Emission Unit, as indicated by a Federally Enforceable Emissions Limit, if all the emissions form that Emissions Unit have been previously offset in a documented prior permitting action pursuant to Regulation XIII – *NSR*, or prior rules 203.1, 203.2, 213, 213.1, 213.2 and 213.3.

In the case of Goldstone, there is a documented NSR permitting action from April 20, 1990, in which the NO_X emissions from the prime diesel-fired engines of the Echo and Mars sites were capped at 250 tons per year. This NO_X emission limit was in response to documented NSR modeling which fulfilled and met the requirements of Regulation XIII – *NSR*. The District permits on these engines (the Echo and Mars Sites), and the corresponding FOP incorporated this 250 tons per year NO_X limit as Federally Enforceable. While the specific language of this

Federally Enforceable limit suggests it was specific to those generators of the Echo and Mars sites, it is evident that permitting actions later on in Goldstone's history assumed that the 250 tons per year of NO_X was actually a facility-wide limit, not an equipment specific limit. This may have been assumed because the diesel-fired engines at Echo and Mars sites represent the original permitting action for Goldstone, meaning that these engines represented the entirety of permitted equipment for Goldstone. To clear up any discrepancies in the permitting actions since then, the District established Federally Enforceable Emission Limits for NO_X, as well as the other Nonattainment Air Pollutants/Precursors, VOC, and PM_{10} in the permitting action of April 15, 2012. The calculation of these Federally Enforceable Emission Limits was based on the April 20, 1990 NSR modeling of the NO_X limit (250 tpy). The 250 tons per year NO_X limit was used as a surrogate for the other pollutants of concern (VOC and PM_{10}), with the assumption that the limitation of NO_X in result to the 1990 NSR modeling, subsequently limited these other pollutants. This method took the ratio of the Mars and Echo Sites, the original Facility PTE, to the NO_X limit of 250 tons per year, then applied this ratio to the emissions of these engines for the other pollutants to calculate the facility-wide limit, the Federally Enforceable Emission Limits. These facility-wide, Federally Enforceable Emission Limits can be viewed in Table 2, below.

Table 2 – *Facility-wide Emission Limits*

Pollutant	Limit (pounds per year)	Limit (tons per year)
NO_X	5000	250
VOC	48000	24
PM_{10}	36000	18

Using the emission change calculations required by District Rule 1304, as described above, the emission change for all past and future modifications to Goldstone will be as follows:

Table 3 – *Emission Change Calculations (pounds per day)*

Pollutant	Proposed Emissions	Historic Actual Emissions	Emissions Change*
NO_X	5000	5000	0
VOC	48000	48000	0
PM_{10}	36000	36000	0

*Emissions Change = (Proposed Emissions) – (Historic Actual Emissions) pursuant to District Rule 1304, section (B)(1)(a).

Goldstone's Proposed Emissions shall be equal to the Potential to Emit (as defined in District Rule 1301, section (UU)), which states that a Potential to Emit is equal to a Federally Enforceable operational limitation, these Federally Enforceable Emission Limits are defined in Table 3.

Goldstone's Historic Actual Emissions are also equal to the Potential to Emit for that Emission Unit, pursuant to District Rule 1304, section (D)(2)(a)(iv), as these Potential to Emit values are Federally Enforceable Emission Limits that have been previously fulfilled by NSR in April of 1990, and found to meet the NSR requirements of XIII. The Federally Enforceable Emission Limits defined in Table 4, were established by using the 1990 NSR modeling of the NOx limit

(250 tpy) as a surrogate for the other pollutants of concern (VOC and PM10), with the assumption that the limitation of NO_X, subsequently limits these other pollutants.

Because these Federally Enforceable Emission Limits result in no Net Emission Increase for all modifications, offsets are not required for this permitting action.

2. Determination of Nonattainment NSR Requirements

[District Rule 1302(C)(2)]

a. BACT Evaluation

[District Rule 1302(C)(2)(a)]

Best Available Control Technology (BACT) is required for each new Permit Unit that has a Potential to Emit 25 pounds or more per day of any Nonattainment Air Pollutant or its Precursors; or, when located at a new or Modified Facility that emits, or has the Potential to Emit, twenty-five (25) tons per year or more of any Nonattainment Air Pollutant or its Precursors (District Rule 1303(A)(3)). Goldstone has a facility PTE in excess of twenty – five (25) tons per year for the Nonattainment Air Pollutant and Precursors of NO_X, VOC, and, PM_{10}. Additionally, the proposed Permit Units may have a Potential to Emit of 25 pounds per day of VOC (Nonattainment Precursor). Therefore, the proposed application for the for three new HVLP Spray Guns and one new Air Assist & Airless Finishing Spray must meet BACT pursuant to District Rule 1303.

BACT is defined as the most stringent emission limit or control technique which has been achieved in practice, for such Permit Unit class or category of source [District Rule 1301]. The District has deemed that HVLP, or a transfer efficiency equivalent to, is BACT for spray guns and systems.

Goldstone will achieve BACT by purchasing spray guns and systems that are certified to HVLP. Furthermore, the spray finishing system also proposed is air assisted & airless which has a transfer efficiency equal to or greater than HVLP; therefore, Goldstone's proposed equipment meets the requirements of BACT.

b. *Offsets Evaluation*
[District Rule 1302(C)(3)]

Offsets are required for any new or modified Facility which has the Potential to Emit a Regulated Air Pollutant in an amount greater than or equal to the thresholds for the Nonattainment Air Pollutants and their Precursors specified in District Rule 1303 (B)(1).

Goldstone's Historic Actual Emissions are also equal to the Potential to Emit for that Emission Unit, pursuant to District Rule 1304, section (D)(2)(a)(iv), as these Potential to Emit values are Federally Enforceable Emission Limits that have been previously fulfilled by NSR in April of 1990, and found to meet the NSR requirements of XIII. The Federally Enforceable Emission Limits defined in Table 4, were established by using the 1990 NSR modeling of the NOx limit (250 tpy) as a surrogate for the other pollutants of concern (VOC and PM_{10}), with the

assumption that the limitation of NO_X, subsequently limits these other pollutants. Because these Federally Enforceable Emission Limits result in no Net Emission Increase for all modifications, offsets are not required for this permitting action. Subsequently, this modification does not constitute a Major Modification under NSR [District Rule 1301 (DDD)].

c. Determination of Additional Federal Requirements

[District Rule 1302(C)(4)]

Pursuant to the requirements in District Rule 1302 B(1)(a)(ii), an analysis of Alternative Siting is not required as the proposed equipment does not require Offsets, nor is it a Major Modification as defined in District Rule 1301 (DDD).

Pursuant to the requirements in District Rule 1302 B(1)(a)(iii), an analysis of any anticipated impacts on visibility is not required as the proposed equipment does not qualify as an application for a new Major Facility, nor is it a Major Modification for NSR purposes.

3. Determination of Requirements for Toxic Air Contaminants

[District Rule 1302(C)(5)]

a. *District Rule 1320:*
Pursuant to District Rule 1320 – *New Source Review for Toxic Air Contaminants*, Goldstone is subject to both State and Federal Toxic New Source Review, as Goldstone is a Modified Facility (or Emissions Units) which has the potential to emit a Toxic Air Contaminant, as well contains Emissions Units which are subject to an Airborne Toxic Control Measure (State T-NSR), and Goldstone also has the potential to emit 10 tons per year of any single Hazardous Air Pollutant (Federal T-NSR). Pursuant to the requirements of District Rule 1320, an applicability analysis of state and federal air toxic regulations was conducted for the proposed equipment (State T-NSR and Federal T-NSR, respectively). The State T-NSR and Federal T-NSR analyses are described below:

1. State T-NSR:
Section (B)(2)(a) of District Rule 1320 requires a State Toxic New Source Analysis for any Modified Facility or Permit Unit that has the Potential to Emit a Toxic Air Contaminant, or is subject to an Airborne Toxic Control Measure (ATCM). The proposed spray guns and system do have the Potential to Emit Toxic Air Contaminants since the coatings they may potentially spray may contain trace TAC compounds. The District requires that all coatings used be compliant with District, State, and Federal regulations. The District requires that all HAP/TAC emissions be recorded and requires Goldstone to report toxic emissions on at least a triennial frequency. Of the current coatings proposed for the painting of the deep space communication antennae, only the cleaning solvent contains TAC.

Section (E)(1)(b) of District Rule 1320 requires that if any ATCM applies to the proposed equipment, the requirements of that ATCM shall be added to the District permit. No ATCMs does apply to the proposed Permit Units.

Pursuant to District Rule 1320, section (E)(2), State T-NSR also requires an Emission Unit Prioritization Score. In this case Emission Unit defines the Modified Facility of Goldstone inclusive the application for proposed three, new HVLP Spray Guns and one new Air Assist & Airless Finishing Spray System. To fulfill this requirement, an Emission Unit Prioritization Score was calculated totaling carcinogenic effects, non-carcinogenic acute effects, and non-carcinogenic chronic effects for the Modified Facility (all Emissions Units, including the four new proposed units). Emissions for the spray guns and spray system were calculated using the proposed product MSDS and proposed product usages. None of the proposed coatings contained TAC; however, the proposed cleaning solvent did contain TAC, namely toluene. The Emission Unit Prioritization Score was calculated using Goldstone's most recent (2015 emission year) Comprehensive Emission Inventory Report (CEIR) in HARP software, which is consistent with the 2016 *CAPCOA Facility Prioritization Guidelines*, and is based on a conservative receptor selection of 4,000 meters. The closest receptor to the proposed equipment location is the residential area of the Fort Irwin National Training Center, located approximately 7,348 meters southeast of the Goldstone Facility entrance (please refer to Appendix B for the Emission Unit Prioritization HARP data). Please note that the actual location of the emitting equipment is located even further from any receptors. As shown in Table 4, the carcinogenic Prioritization Score for the Modified Facility is greater than one (1) and less than ten (10), and therefore, categorizes Goldstone as 'Intermediate Priority'. The addition of the proposed usage of solvent (containing toluene) did not change the overall facility score (addition of proposed solvent use (toluene emissions) increased the score by 4.55E-07, see Appendix B). Pursuant to District Rule 1320, section (E)(2)(b), no further State T-NSR action is required.

Table 4 – *Modified Facility Prioritization Score*

Receptor Distance (in meters)	**Receptor Type**	**Toxic Effect**	**Total Prioritization Score**	**Prioritization Category (Low, Intermediate, or High)**
4,000	Resident	Carcinogenic	3.78	Intermediate
		Non-carcinogenic Acute	0.013	Low
		Non-carcinogenic Chronic	0.0104	Low

2. Federal T-NSR:

Pursuant to section (F)(1) of District Rule 1320, the Emissions Units were analyzed to determine if any current, enforceable Maximum Achievable Control Technology (MACT) standards apply. This analysis yielded there are no applicable MACT standards for the proposed equipment. Goldstone is an Area source for toxics. 40 CFR 63, Subpart HHHHHH – NESHAP for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources does not apply as section 63.11169(d)(1) specifically exempts surface

coating or paint stripping performed on site at installations owned or operated by the National Aeronautics and Space Administration.

b. District Rule 1520 – Toxic Hot Spots Analysis:
District Rule 1520 – *Control of Toxic Air Contaminants from Existing Sources* applies to Goldstone, as they are an existing facility that has a facility PTE greater than ten (10) tons per year for VOC, PM, and NO_X, as well as a PTE to emit a TAC (Section (B)(1)(a) and (c)). Goldstone's most recent (2015 emission year) CEIR was utilized to fulfill the requirements of section (D)(1)(b)(i) of District Rule 1520. Therefore, the Toxic 'Hot Spots' Program Analysis pursuant to section (E) of District Rule 1520, is synonymous with the Prioritization Scoring discussed above, as required by District Rule 1320. The Modified Facility Prioritization Scores are represented in Table 4, above. As illustrated in Table 4, the carcinogenic Prioritization Score for the Modified Facility is greater than one (1) and less than ten (10); therefore, categorizes Goldstone as 'Intermediate Priority'. Based on the requirements of District Rule 1520, section (E)(1)(b), no further analysis is required.

4. Determination of Requirements for Prevention of Significant Deterioration

a. PSD Analysis

Goldstone is not a Major PSD Facility as defined by District Rule 1600 – PSD, incorporating 40 CFR 52.21 by reference. This facility does not have PTE greater than 250 tons per year for any PSD Air Pollutant, nor does it classify as any of the 28 listed source categories with 100 tons per year thresholds.

Goldstone has Federally Enforceable Emission Limits for NO_X, VOC, and PM_{10} which are all below the 250 tons per year Major PSD Facility Thresholds. Additionally, Goldstone's PTE for CO, SO_X, $PM_{2.5}$, and Pb are all far below this threshold. It is important to note that these Federally Enforceable Emission Limits were based on modeling that was conducted when the engines were relied upon, and permitted, as prime back up units. In 2012, Goldstone installed a Site-Wide Uninterruptable Power Supply (SWUPS), which is a battery-powered, back-up power source to commercial power that has proven to provide adequate and reliable back up service for the critical nature of the deep space communications and tracking conducted at the facility, alleviating the need for prime-powered engines. Subsequently, the permitted engines were changed from prime to emergency status which significantly reduced the actual emissions associated with the facility. The reductions were so significant, that the potential to emit (now based on maintenance and testing hours only; the policy for emergency engines) fell below the Federally Major thresholds for a facility located outside the FONA. Despite this fact, Goldstone preferred to maintain their Federally Major status and FOP. A summary of Goldstone's most recent CEIR data is included in Appendix B for comparison.

b. NAAQS Impact Analysis

District Rule 1302, section (D)(5)(b)(iv) requires that any new or Modified Facility located in an area classified by USEPA as attainment or unclassifiable shall determine if the Facility will cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS). The proposed modification, discussed herein, do not cause an increase in emissions and in the case of

CO, do not cause a PSD-significant increase; therefore, the proposed project will not contribute to a violation of the NAAQS.

7. Rules and Regulations Applicable to the Proposed Project

District Rules

Rule 201/203 – *Permits to Construct/Permit to Operate*. Any equipment which may cause the issuance of air contaminants must obtain authorization for such construction from the Air Pollution Control Officer. Goldstone is in compliance with this rule as they appropriately applied for a District permit for all new equipment and maintains District permits for all residing equipment.

Rule 204 – *Permit Conditions*. To assure compliance with all applicable regulations, the Air Pollution Control Officer (Executive Director) may impose written conditions on any permit. The District has imposed permit conditions to ensure Goldstone complies with all applicable regulations.

Rule 206 – *Posting of Permit to Operate*. Equipment shall not operate unless the entire permit is affixed upon the equipment or kept at a location for which it is issued and will be made available to the District upon request.

Rule 207 – *Altering or Falsifying of Permit.* A person shall not willfully deface, alter, forge, or falsify any issued permit.

Rule 209 – *Transfer and Voiding of Permits*. Goldstone shall not transfer, whether by operation of law or otherwise, either from one location to another, from one piece of equipment to another, or from one person to another. When equipment which has been granted a permit is altered, changes location, or no longer will be operated, the permit shall become void.

Rule 210 – *Applications*. Goldstone provided all the required information to correctly address the proposed equipment pursuant to this rule, although there were instances in which additional information were required, in which the thirty (30) day clock was restarted.

Rule 212 – *Standards for Approving Permits*. This rule establishes baseline criteria for approving permits by the District for certain projects. In accordance with these criteria, the proposed modifications and application does not cause issuance of air contaminants in violation of Sections 41700 or 41701 of the State Health and Safety code.

Rule 221 – *Federal Operating Permit Requirement.* Goldstone is in compliance with this rule, as they currently hold and maintain a Federal Operating Permit.

Rule 301 – *Permit Fees*. The proposed equipment will increase Goldstone's annual permit fees by the applicable amounts described in section (E) of this rule.

Rule 401 – *Visible Emissions*. This rule limits visible emissions opacity to less than 20 percent (or Ringlemann No. 1). In normal operating mode, visible emissions are not expected to exceed 20 percent opacity.

Rule 402 – *Nuisance*. This rule prohibits facility emissions that cause a public nuisance. The proposed modifications and associated equipment is required by permit condition to employ good engineering and operational principles in order to minimize emissions and the possibility of a nuisance.

Rule 408 – *Circumvention*. This rule prohibits hidden or secondary rule violations. The proposed modifications as described is not expected to violate Rule 408.

Rule 430 – *Breakdown Provisions*. Any Breakdown which results in a violation to any rule or regulation as defined by Rule 430 shall be properly addressed pursuant to this rule.

Rule 900 – Standards of Performance for New Stationary Sources (NSPS). Rule 900 adopts all applicable provisions regarding standards of performance for new stationary sources as set forth in 40 CFR 60. There are no NSPSs applicable to the proposed equipment. 40 CFR 63, Subpart HHHHHH – NESHAP for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources does not apply as section 63.11169(d)(1) specifically exempts surface coating or paint stripping performed on site at installations owned or operated by the National Aeronautics and Space Administration.

Regulation X – *National Emission Standards for Hazardous Air Pollutants*. Pursuant to Regulation X, Goldstone is required to comply with all applicable ATCMs. There are no ATCMs applicable to the proposed equipment.

Rule 1113 – *Architectural Coatings*
This rule applies to Goldstone since they may potential apply or solicit the application of a metal coating. Goldstone will comply with this rule by using coatings and solvents that meet the VOC content of this rule and by using HVLP or transfer efficient equivalent application techniques.

Rule 1115 – *Metal Parts and Products Coatings*
This rule applies to Goldstone since they may potential apply or solicit the application of an Architectural Coating. Goldstone will comply with this rule by using coatings and solvents that meet the VOC content of this rule and by using HVLP or transfer efficient equivalent application techniques.

Regulation XII – *Title V Permits*
This regulation contains requirements for sources which must have a FOP. Goldstone currently has a FOP and is expected to comply with all applicable rules and regulations.

Rule 1201 – *Federal Operating Permit Definitions.* Goldstone is defined as a federally Major Facility pursuant to this rule.

Rule 1203 – *Federal Operating Permits*. This document represents the preliminary determination for the proposed modifications to Goldstone's FOP. This proposed Significant Modification will also be properly noticed pursuant to District Rule 1207, as required.

Rule 1205 – *Modifications of Federal Operating Permits*. The proposed equipment classifies as a Significant Modification to Goldstone's Federal Operating Permit (FOP), and subsequently, this permit modification is issued in accordance with the provisions of District Rule 1203.

Rule 1208 – *Certification*. Goldstone included a Certification of Responsible Official as required with the submitted application for the proposed equipment.

Rule 1211 – *Greenhouse Gas Provisions of Federal Operating Permits*. Goldstone is not a Major GHG Facility pursuant to Rule 3011.

Regulation XIII – *New Source Review*
Rule 1302 – *Procedure*. This rule applies to all new or Modified Facilities and requires certain requirements to be fulfilled when submitting an application. All applicable requirements of this rule are discussed in this NSR document as part of the Analysis procedure. Certification of compliance with the Federal Clean Air Act, applicable implementation plans, and all applicable District rules and regulations have been addressed. The Authority to Construct (ATC) application package for the proposed equipment includes sufficient documentation to comply with Rule 1302(D)(5)(b)(ii). Permit conditions for the proposed project will require compliance with Rule 1302(D)(5)(b)(iii).

Rule 1303 – *Requirements*. This rule requires BACT and offsets for selected facility modifications. Equipment installed shall meet BACT and prior to the commencement of construction the proponent shall have obtained sufficient offsets to comply with Rule 1303(B)(1). Goldstone will achieve BACT by purchasing spray guns and systems that are certified to HVLP. Furthermore, the spray finishing system also proposed is air assisted & airless which has a transfer efficiency equal to or greater than HVLP; therefore, Goldstone's proposed equipment meets the requirements of BACT.

Rule 1304 – *Emissions Calculations*. The Proposed Emissions from the proposed modifications were calculated pursuant to section (B)(1)(a) of this rule.

Rule 1320 – *New Source Review for Toxic Air Contaminants*. Pursuant to the requirements of District Rule 1302, an applicability analysis of state and federal air toxic regulations was conducted for the proposed modifications (State T-NSR and Federal T-NSR, respectively) and is discussed in further detail in section (B)(3)(a)(1) of this document.

Rule 1520 – *Control of Toxic Air Contaminants from Existing Sources*. The proposed project is subject to Rule 1520, as Goldstone has a facility PTE greater than ten (10) tons per year for VOC, PM, and NO_x, as well as a PTE to emit a TAC (Section (B)(1)(a) and (c)). A Toxic 'Hot Spots' Program Analysis was conducted pursuant to section (E) of District Rule 1520. Facility Prioritization Scores were calculated pursuant to this rule and the results of the analysis is discussed in further detail in section (B)(3), above.

Regulation XVII – *Prevention of Significant Deterioration*
Goldstone is not subject to PSD as it does classify as a Major PSD Facility as defined by District Rule 1600 – PSD, incorporating 40 CFR 52.21 by reference. This facility does not have PTE greater than 250 tons per year for any PSD Air Pollutant, nor does it classify as any of the 28 listed source categories with 100 tons per year thresholds. Additionally, per the language in the applicability procedures of 40 CFR 52.21 (a)(2)(i) and (ii), PSD applies to "any new major stationary source or the major modification of any existing major stationary source". The proposed modification does not result in a new major stationary source and does not constitute a major modification; hence, the project is not subject to PSD.

State Regulations

17 CCR 93115 – *Airborne Toxic Control Measure for Stationary Compression Ignition Engines* (Stationary ATCM). All stationary, diesel-fired, compression ignition engines permits are current to reflect the requirements of the Stationary ATCM, as applicable. Operating requirements that are prompted from this regulation are not federally-enforceable and are designated as District and State Applicable only in the Federal Operating permit. This permitting action does not trigger any new ATCM applicability.

17 CCR 93116 – *Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater* (Portable ATCM). Goldstone complies with the requirements of the Portable ATCM by complying with the permit conditions specified. All portable, diesel-fired, compression ignition engines permits reflect the requirements of the Portable ATCM, as applicable. This permitting action does not trigger any new ATCM applicability.

17 CCR 93112 – Airborne Toxic Control Measure for Emissions of Hexavalent Chromium and Cadmium from Motor Vehicle and Mobile Equipment Coatings. This ATCM does not apply to the proposed equipment as Goldstone does not coat Motor Vehicles or Mobile Equipment at their facility.

c. Federal Regulations

40 CFR 61, Subpart M – *National Emission Standard for Asbestos*
This facility on an as needed basis is subject to Section 61.145 through 61.147 - standards for the demolition and renovation of asbestos. Historically, the facility has been in compliance with the requirements of these standards. Appropriate conditions are included on Goldstone's Federal Operating Permit in section (II)(C) to ensure compliance with these requirements.

40 CFR 63, Subpart ZZZZ – *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating internal Combustion Engines* (NESHAP). This regulation is applicable to existing, new and reconstructed stationary RICE at major and area sources of hazardous air pollutants (HAP) emissions. Goldstone operates stationary emergency-use RICE, only; all other engines are portable. All Goldstone's stationary emergency-use RICE are deemed "existing" as they all commenced construction prior to June 2006. Goldstone is an area source of HAP

emissions. Because these engines are considered existing engines they are not subject to the NSPS requirements for stationary RICE in 40 CFR 60 Subpart IIII or Subpart JJJJ. Goldstone will comply with the NESHAP by complying with the permit conditions as specified in the FOP. This permitting action does not trigger any new NESHAP applicability.

40 CFR Part 63, Subpart CCCCCC – *National Emission Standards for Hazardous Air Pollutants for Gasoline Dispensing Facilities* (6C). This subpart establishes national emission limitations and management practices for hazardous air pollutants (HAP) emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF). This subpart also establishes requirements to demonstrate compliance with the emission limitations and management practices. Goldstone operates an underground non-retail gasoline tank, and this equipment is subject to 6C; however, the monthly gasoline throughput of this GDF is less than 10,000 gallons; therefore, only the requirements of 40 CFR 63.11116 applies. Goldstone will comply with 6C by complying with the requirements of 63.11116 as required by a facility-wide requirement in their Federal Operating Permit in section (II)(A)(34). This permitting action does not trigger any new NESHAP applicability.

40 CFR 63, Subpart HHHHHH – *National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations.* This subpart does not apply to the proposed equipment as section 63.11169(d)(1) specifically exempts surface coating or paint stripping performed on site at installations owned or operated by the National Aeronautics and Space Administration.

40 CFR 64, *Compliance Assurance Monitoring*. The Compliance Assurance Monitoring (CAM) rule (40 CFR 64) applies to each Pollutant Specific Emissions Unit (PSEU) when it is located at a Major Facility that is required to obtain Title V, Part 70 or 71 permit and it meets all of the following criteria. "PSEU" means an emissions unit considered separately with respect to each regulated air pollutant.

> The PSEU must:
> a. Be subject to an emission limitation or standard [40 CFR 64; AND,
> b. Use a control device to achieve compliance [40 CFR 64.2(a)(2)]; AND,
> c. Have the **potential pre-control** emissions that exceed or are equivalent to the major source threshold. [40 CFR 64.2(a)(3)]

This permitting action does not trigger CAM as the proposed equipment does not use a control device.

40 CFR Part 82 – *Protection of Stratospheric Ozone*
This facility is in compliance with the requirements of this part. Any servicing of air conditioners is performed by a qualified contracting company. An appropriate condition will be included on the permit to ensure continued compliance with these requirements.

8. NSR Preliminary Decision - Conclusion

The District has reviewed the proposed modifications and application for Goldstone and conducted a succinct written analysis as required by District Rule 1302, section (D)(1)(b) and District Rule 1203, section (B)(1)(a). The District has determined that the proposed modifications and application are in compliance with all applicable District, state, and federal rules and regulations as proposed and when operated in terms of the permit conditions of the associate, revised FOP.

C. Title V Permit/FOP – Significant Permit Modification

1. Proposed Changes to FOP

The proposed changes to the FOP are indicated in the red-line version of the draft FOP dated November 30, 2017. Additionally, a description and explanation of those changes are indicated below:

PART I: INTRODUCTORY INFORMATION

This section of the Federal Operating Permit contains general information about the Goldstone facility, including facility identifying information (section A), a description of the facility (section B), and a description of the facility's equipment (section C).

Changes made to this section of the FOP:

● Updated Title Page to new formatting for consistency. No changes to content.
Part I, Section A, the formatting of this section was updated to be in a table format that is easier to maintain and edit. No changes were made to the information other than adding the NAICS code and updating the coordinates.
● Part I, Section B, the equipment list information was updated to include the proposed new equipment.
● Part I, Section C, the description of equipment was updated to include the proposed new equipment.

PART II: FACILITYWIDE APPLICABLE REQUIREMENTS; EMISSIONS LIMITATIONS; MONITORING, RECORDKEEPING, REPORTING AND TESTING REQUIREMENTS; COMPLIANCE CONDITIONS; COMPLIANCE PLANS

This section of the Federal Operating Permit contains requirements applicable to the entire facility and equipment (section A), facility-wide monitoring, recordkeeping, and reporting requirements (section B), and facility-wide compliance conditions (section C).

Changes made to this section of the FOP:

● No changes were made to this section.

PART III: EQUIPMENT SPECIFIC APPLICABLE REQUIREMENTS; EMISSIONS LIMITATIONS; MONITORING, RECORDKEEPING, REPORTING AND TESTING REQUIREMENTS; COMPLIANCE CONDITIONS; COMPLIANCE PLANS

This section of the Federal Operating Permit contains equipment-specific applicable requirements including emission limitations, monitoring and recordkeeping, reporting and testing, and compliance plans.

Changes made to this section of the FOP:

- PART III, Section D, CONDITIONS APPLICABLE TO THE FOLLOWING PORTABLE, DIESEL IC ENGINE, PRIME WELDERS:
  - Corrected the permit number on one of the welders. This is a typo correction. Also updated the serial number on one welder which is also a typo correction.
  - Removed condition 5 from this equipment. This is a typo correction, the engines of these units were replaced by tier 4 final units in a previously approved NSR action in the beginning of 2017. This condition was accidently left in the permit for the old tier 0 engines that were removed in that permitting action; therefore, no longer applies.
- PART III, Section I, CONDITIONS APPLICABLE TO THE FOLLOWING PORTABLE SPRAY GUNS AND SPRAY SYSTEM:
  - Added new section to address the new proposed equipment (three new portable spray guns and one new portable spray system). This includes the proposed operating conditions for this equipment.

PART IV: STANDARD FEDERAL OPERATING PERMIT CONDITIONS

This section of the Federal Operating Permit contains standard federal operating permit conditions.

Changes made to this section of the FOP:

- No changes were made to this section.

PART V: OPERATIONAL FLEXIBILITY

This section of the Federal Operating Permit contains information on Off Permit Changes.

Changes made to this section of the FOP:

- No changes were made to this section.

PART VI: CONVENTIONS, ABREVIATIONS, DEFINITIONS

Changes made to this section of the FOP:

- No changes were made to this section.

PART VII: DISTRICT SIP HISTORY AND CITATIONS

Changes made to this section of the FOP:

● No changes were made to this section.

2. CAM Analysis

The Compliance Assurance Monitoring (CAM) rule (40 CFR 64) applies to each Pollutant Specific Emissions Unit (PSEU) when it is located at major source that is required to obtain Title V, Part 70 or 71 permit and it meets all of the following criteria. "PSEU" means an emissions unit considered separately with respect to each regulated air pollutant.

The PSEU must:
a. Be subject to an emission limitation or standard; AND,
b. Use a control device to achieve compliance; AND,
c. Have the **potential pre-control** emissions that exceed or are equivalent to the major source threshold.

The Goldstone facility does not satisfy the criteria specified in either "a", "b", and "c" above; therefore, they are not subject to CAM.

The information provided in the table on the next page was developed pursuant to 40 CFR 64 to determine source emissions, rule applicability and identification of facilities subject to CAM.

2. Title V/FOP Preliminary Determination – Conclusion

The District has reviewed the applications and proposed modifications to Goldstone's Federal Operating Permit. The District has determined that the proposed modification is in compliance with all applicable District, state, and federal rules and regulations as proposed when operated in the terms of the permit conditions given herein, and the attached revised FOP.

This preliminary determination will be submitted to USEPA, CARB, and the public for review and comment on December 6, 2017. The public notice for this preliminary determination will be published on December 11, 2017, allowing for public comment until January 10, 2018.

.

District Permit	Pollutant subject to Limitation or Standard	Uncontrolled PTE (tpy)	Uncontrolled PTE greater than 100% of Major Source Threshold	Unit uses a control device	Exempt from CAM	CAM Plan Required
B010789, B011623, B012692, B012693, B012695 E000272, E000273, E000274, E000275, E000276, E000277, E000278, E000279, E000280, E000281, E003381, E003382, E005133, E009239, E009240, E009241, N001477, P012830, P012831, P012832, P012833 T003003, and T012185	NOx	250	YES	NO	YES	NO
	VOC	24	NO	NO	YES	NO
	PM10	18	NO	NO	YES	NO

Pollutant	Major Source Threshold (tons per year)
NO_X	25
VOC	25
CO	100
PM_{10}	100
SO_X	100
Single HAP	10
Combination of HAP	25

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D. Comment Period and Notifications

1. Public Comment

This preliminary determination will be publicly noticed on December 11, 2017, allowing for public comment until January 10, 2018. Please see Appendix C for noticing details.

2. Notifications

The preliminary determination was submitted to USEPA and CARB pursuant to District Rule 1207 for a forty-five (45) day review period on December 6, 2017. The final modified FOP shall be issued on or about January 21, 2018.

All correspondence as required by District Rules 1302 and 1207 were forwarded to electronically to the following recipients:

Director, Office of Air Division
United States EPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105
R9airpermits_AV_MD@epa.gov

Chief, Stationary Source Division
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ttle@arb.ca.gov

Mark Solheid
Senior ESH Analyst, Harris Corp.
NASA Goldstone DSCC
93 Goldstone Road
Goldstone, CA 92310
Mark.J.Solheid@jpl.nasa.gov

Appendix A
Application

Mojave Desert Air Quality Management District

TITLE V – PERMIT AMENDMENT / MODIFICATION

I. **PERMIT ACTION** (Check appropriate box)

☐ MINOR MODIFICATION X SIGNIFICANT MODIFICATION

☐ ADMINISTRATIVE AMENDMENT

☐ OFF-PERMIT CHANGE

1. FACILITY NAME: NASA Goldstone Deep Space Communication Complex
2. FACILITY ID: 00611
3. TITLE V PERMIT NO: 13300611
4. TYPE OF ORGANIZATION: ☐Corporation ☐Sole Ownership X Government ☐Partnership ☐Utility
5. COMPANY NAME: National Aeronautics &Space Administration
6. COMPANY MAILING/BILLING ADDRESS: STREET/P.O. BOX: 4800 Oak Grove Dr. CITY: Pasadena STATE: CA 9-DIGIT ZIP CODE: 91109-0000
7. FACILITY ADDRESS: STREET: 93 Goldstone Road CITY: Fort Irwin STATE: CA 9-DIGIT ZIP CODE: 92308-0000 PROPOSED DATE OF INSTALLATION:
8. DISTANCES (FEET AND DIRECTION) TO CLOSEST: FENCELINE: 11,088 S RESIDENCE: 38,016 S BUSINESS: 36,432 S SCHOOL: 50,160 S
9. GENERAL NATURE OF BUSINESS: Deep Space Communications
10. DESCRIPTION OF EQUIPMENT OR MODIFICATION FOR WHICH APPLICATION IS MADE (include Permit #'s if known, and use additional sheets if necessary): Add three high pressure low volume spray paint guns and one air assisted paint system to our Title V.

11. PERSON TO CONTACT FOR INFORMATION ON THIS APPLICATION:

NAME: Mark Solheid PHONE NUMBER: 760/255-8225

TITLE: Sr. Environmental Analyst EMAIL: mark.j.solheid@jpl.nasa.gov

II. COMPLIANCE CERTIFICATION (Read each statement carefully and check all for confirmation):

X Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

X Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

X Corrected information will be provided to the District when I become aware that incorrect or incomplete information as been submitted.

X Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

Donald Westbrook — 7/18/17

Signature of Responsible Official — Date

Donald Westbrook

Name of Responsible Official (please print)

Complex Manager

Title of Responsible Official (please print)

For AQMD Use Only:

DATE STAMP	*DISTRICT PERMIT APPLICATION NO:* _____ *COMPANY /FACILITY ID:* _____

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
(760) 245-1661 Facsimile: (760) 245-2022
www.mdaqmd.ca.gov
Brad Poiriez
Executive Director

APPLICATION FOR SPRAY BOOTH AND PAINT SPRAY GUN ONLY

Page 1 of 2: please type or print

REMIT $269.00 WITH THIS DOCUMENT ($153.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): National Aeronautics & Space Administration		1a. Federal Tax ID No.: 52-1597904
2. Mailing/Billing Address (for above company name): 4800 Oak Grove Drive, Pasadena, CA 91109		
3. Facility or Business License Name (for equipment location): Goldstone Deep Space Communications		
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): 93 Goldstone Rd., Ft. Irwin, CA 92311		Facility UTM or Lat/Long: WG 84 UTM (M) 11517693 E/3906401 N
5. Contact Name/Title: Mark Solheid	Email Address: mark.j.solheid@jpl.nasa.gov	Phone/Fax Nos.: 760 255-8225
6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment: Binks Mach 1 HVLP Spray Gun, SCAQMD Compliant Gun #3		
7. Application is for: ■ New Construction ☐ Modification* ☐ Change of Owner*		For modification or change of owner: *Current Permit Number: _____
8. Type of Organization (check one): ☐ Individual Owner ☐ Partnership ☐ Corporation ☐ Utility ☐ Local Agency ☐ State Agency ■ Federal Agency		
9. Distances (feet and direction to closest): 11,088 S Fenceline; 38,016 S Residence; 36,432 S Business; 50,160 S School		
10. General Nature of Business: Space Exploration	11. Principal Product: Data	
12. Facility Annual Throughput by Quarters (percent): 0 % Jan-Mar; 50 % Apr-Jun; 50 % Jul-Sep; 0 % Oct-Dec	13. Expected Operating Hours: 4 Hrs/Day; 3 Days/Wk; 12 Wks/Yr; 144 Total Hrs/Yr	
14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? ☐ Yes ☐ No		
15. Signature of Responsible Official: Donald Westbrook	Official Title: Complex Manager	
Typed or Printed Name of Responsible Official: Donald Westbrook	Phone Number: 760/255-8423	Date Signed: 7/18/17

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*
MD1 ~2089	44659/ MD7858	P012830	133/6011

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
SPRAY BOOTH AND PAINT SPRAY GUN APPLICATION, continued

16. EQUIPMENT INFORMATION:

Manufacturer: Binkks

Model No.: Mach 1 HVLP Serial No.: N/A

Booth Dimensions (specify units): W: N/A by L: N/A by H: N/A

■ Open Spray (Gun) ☐ Automotive Booth ☐ Bench Type Booth ☐ Floor Type Booth

Exhaust Fan (if present): Rating (hp): N/A Fan Diameter (inches): N/A

Manometer across exhaust filters? ☐ Yes ☐ No Minimum Pressure Drop (in inches of water): ____

17. FILTERS:

	Type and Material	Number	Width	Length	Thickness
Inlet	N/A				
Exhaust First Stage	N/A				
Exhaust Second Stage	N/A				
Exhaust Third Stage	N/A				

18. APPLICATION

Article Sprayed (check all that apply):

☐ Aerospace ■ Architectural ☐ Metal ☐ Plastic ☐ Composite ☐ Wood

☐ Motor Vehicle (Group I) ☐ Motor Vehicle (Group II) ☐ Other (specify): ____

Minimum size of articles sprayed (feet): ____ Width ____ Length ____ Height

Method of Application (check all that apply):

☐ Air Atomization ☐ Pressure Atomization (Airless) ☐ Combined Air and Airless ☐ Electrostatic

■ High Volume Low Pressure (HVLP) ☐ Hand ☐ Other (specify): ____

Gun or Spray System Cleaning Method:

☐ Enclosed Gun Cleaning System ■ Open Flush ■ Manual Wipe ☐ Other (specify): ____

19. DISPOSITION

■ Air Dried ☐ Oven Dried, Baked or Cured, specify: ☐ Part of Booth ☐ Separate Enclosure

Oven (if present) is: ☐ Gas Fired ☐ Electric Rating and max T (specify units): ____

20. MATERIALS APPLIED

Type	VOC Content lb/gal or gm/liter	Vapor Pressure mmHg @ 20° C	Maximum Use gal/l per day	Maximum Use gal/l per year
Enamel				
Topcoat	157 g/L		2 gal/day	25 gal/year
Primer	83 g/L & 30 g/L		2 gal/day	25 gal/year
Sealer				
Stain				
Added Thinner				
Clean-Up Solvent				
Surface Preparation Solution				
Other: Cleaning solvent before painting	862.7 g/L	146.1	0.5 gal/year	15 gal/year
Other:				
Other:				

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Executive Director

APPLICATION FOR SPRAY BOOTH AND PAINT SPRAY GUN ONLY

Page 1 of 2: please type or print

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1. Permit To Be Issued To (company name to receive permit): National Aeronautics & Space Administration		1a. Federal Tax ID No.: 52-1597904
2. Mailing/Billing Address (for above company name): 4800 Oak Grove Drive, Pasadena, CA 91109		
3. Facility or Business License Name (for equipment location): Goldstone Deep Space Communications		
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): 93 Goldstone Rd., Ft. Irwin, CA 92311		Facility UTM or Lat/Long: WG 84 UTM (M) 11517693 E/3906401 N
5. Contact Name/Title: Mark Solheid	Email Address: mark.j.solheid@jpl.nasa.gov	Phone/Fax Nos.: 760 255-8225
6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment: Binks Mach 1 HVLP Spray Gun, SCAQMD Compliant Gun #2		
7. Application is for: ■ New Construction ☐ Modification* ☐ Change of Owner*		For modification or change of owner: *Current Permit Number: _____
8. Type of Organization (check one): ☐ Individual Owner ☐ Partnership ☐ Corporation ☐ Utility ☐ Local Agency ☐ State Agency ■ Federal Agency		
9. Distances (feet and direction to closest): 11,088 S Fenceline; 38,016 S Residence; 36,432 S Business; 50,160 S School		
10. General Nature of Business: Space Exploration	11. Principal Product: Data	
12. Facility Annual Throughput by Quarters (percent): 0 % Jan-Mar; 50 % Apr-Jun; 50 % Jul-Sep; 0 % Oct-Dec	13. Expected Operating Hours: 4 Hrs/Day; 3 Days/Wk; 12 Wks/Yr; 144 Total Hrs/Yr	
14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? ☐ Yes ☐ No		
15. Signature of Responsible Official: Donald Westbrook	Official Title: Complex Manager	
Typed or Printed Name of Responsible Official: Donald Westbrook	Phone Number: 760/255-8423	Date Signed: 7/18/17

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*
MD1N2090	44659/MD7858	P012831	133/611

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
SPRAY BOOTH AND PAINT SPRAY GUN APPLICATION, continued

16. EQUIPMENT INFORMATION:

Manufacturer: Binkks

Model No.: Mach 1 HVLP Serial No.: N/A

Booth Dimensions (specify units): W: N/A by L: N/A by H: N/A

☒ Open Spray (Gun) ☐ Automotive Booth ☐ Bench Type Booth ☐ Floor Type Booth

Exhaust Fan (if present): Rating (hp): N/A Fan Diameter (inches): N/A

Manometer across exhaust filters? ☐ Yes ☐ No Minimum Pressure Drop (in inches of water): ____

17. FILTERS:

	Type and Material	Number	Width	Length	Thickness
Inlet	N/A				
Exhaust First Stage	N/A				
Exhaust Second Stage	N/A				
Exhaust Third Stage	N/A				

18. APPLICATION

Article Sprayed (check all that apply):

☐ Aerospace ☒ Architectural ☐ Metal ☐ Plastic ☐ Composite ☐ Wood

☐ Motor Vehicle (Group I) ☐ Motor Vehicle (Group II) ☐ Other (specify): ____

Minimum size of articles sprayed (feet): ____ Width ____ Length ____ Height

Method of Application (check all that apply):

☐ Air Atomization ☐ Pressure Atomization (Airless) ☐ Combined Air and Airless ☐ Electrostatic

☒ High Volume Low Pressure (HVLP) ☐ Hand ☐ Other (specify): ____

Gun or Spray System Cleaning Method:

☐ Enclosed Gun Cleaning System ☒ Open Flush ☒ Manual Wipe ☐ Other (specify): ____

19. DISPOSITION

☒ Air Dried ☐ Oven Dried, Baked or Cured, specify: ☐ Part of Booth ☐ Separate Enclosure

Oven (if present) is: ☐ Gas Fired ☐ Electric Rating and max T (specify units): ____

20. MATERIALS APPLIED

Type	VOC Content lb/gal or gm/liter	Vapor Pressure mmHg @ 20° C	Maximum Use gal/l per day	Maximum Use gal/l per year
Enamel				
Topcoat	157 g/L		2 gal/day	25 gal/year
Primer	83 g/L & 30 g/L		2 gal/day	25 gal/year
Sealer				
Stain				
Added Thinner				
Clean-Up Solvent				
Surface Preparation Solution				
Other: Cleaning solvent before painting	862.7 g/L	146.1	0.5 gal/year	15 gal/year
Other:				
Other:				

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APPLICATION FOR SPRAY BOOTH AND PAINT SPRAY GUN ONLY

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3. Facility or Business License Name (for equipment location): Goldstone Deep Space Communications		
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): 93 Goldstone Rd., Ft. Irwin, CA 92311		Facility UTM or Lat/Long: WG 84 UTM (M) 11517693 E/3906401 N
5. Contact Name/Title: Mark Solheid	Email Address: mark.j.solheid@jpl.nasa.gov	Phone/Fax Nos.: 760 255-8225
6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment: Binks Mach 1 HVLP Spray Gun, SCAQMD Compliant Gun #1		
7. Application is for: ☒ New Construction ☐ Modification* ☐ Change of Owner*		For modification or change of owner: *Current Permit Number: _____
8. Type of Organization (check one): ☐ Individual Owner ☐ Partnership ☐ Corporation ☐ Utility ☐ Local Agency ☐ State Agency ☒ Federal Agency		
9. Distances (feet and direction to closest): 11,088 S Fenceline; 38,016 S Residence; 36,432 S Business; 50,160 S School		
10. General Nature of Business: Space Exploration	11. Principal Product: Data	
12. Facility Annual Throughput by Quarters (percent): 0 % Jan-Mar; 50 % Apr-Jun; 50 % Jul-Sep; 0 % Oct-Dec	13. Expected Operating Hours: 4 Hrs/Day; 3 Days/Wk; 12 Wks/Yr; 144 Total Hrs/Yr	
14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? ☐ Yes ☐ No		
15. Signature of Responsible Official: Donald Westbrook	Official Title: Complex Manager	
Typed or Printed Name of Responsible Official: Donald Westbrook	Phone Number: 760/255-8423	Date Signed: 7/18/17

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Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*
MDAQ 2091	AA1659/MD7858	P012832	133/611

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
SPRAY BOOTH AND PAINT SPRAY GUN APPLICATION, continued

16. EQUIPMENT INFORMATION:

Manufacturer: Binkks

Model No.: Mach 1 HVLP Serial No.: N/A

Booth Dimensions (specify units): W: N/A by L: N/A by H: N/A

☒ Open Spray (Gun) ☐ Automotive Booth ☐ Bench Type Booth ☐ Floor Type Booth

Exhaust Fan (if present): Rating (hp): N/A Fan Diameter (inches): N/A

Manometer across exhaust filters? ☐ Yes ☐ No Minimum Pressure Drop (in inches of water): ____

17. FILTERS:

	Type and Material	Number	Width	Length	Thickness
Inlet	N/A				
Exhaust First Stage	N/A				
Exhaust Second Stage	N/A				
Exhaust Third Stage	N/A				

18. APPLICATION

Article Sprayed (check all that apply):

☐ Aerospace ☒ Architectural ☐ Metal ☐ Plastic ☐ Composite ☐ Wood

☐ Motor Vehicle (Group I) ☐ Motor Vehicle (Group II) ☐ Other (specify): ____

Minimum size of articles sprayed (feet): ____ Width ____ Length ____ Height

Method of Application (check all that apply):

☐ Air Atomization ☐ Pressure Atomization (Airless) ☐ Combined Air and Airless ☐ Electrostatic

☒ High Volume Low Pressure (HVLP) ☐ Hand ☐ Other (specify): ____

Gun or Spray System Cleaning Method:

☐ Enclosed Gun Cleaning System ☒ Open Flush ☒ Manual Wipe ☐ Other (specify): ____

19. DISPOSITION

☒ Air Dried ☐ Oven Dried, Baked or Cured, specify: ☐ Part of Booth ☐ Separate Enclosure

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Primer	83 g/L & 30 g/L		2 gal/day	25 gal/year
Sealer				
Stain				
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Clean-Up Solvent				
Surface Preparation Solution				
Other: Cleaning solvent before painting	862.7 g/L	146.1	0.5 gal/year	15 gal/year
Other:				
Other:				

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APPLICATION FOR SPRAY BOOTH AND PAINT SPRAY GUN ONLY

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3. Facility or Business License Name (for equipment location): Goldstone Deep Space Communications		
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): 93 Goldstone Rd., Ft. Irwin, CA 92311		Facility UTM or Lat/Long: WG 84 UTM (M) 11517693 E/3906401 N
5. Contact Name/Title: Mark Solheid	Email Address: mark.j.solheid@jpl.nasa.gov	Phone/Fax Nos.: 760 255-8225
6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment: MX 1231 31:1 Pump System for Air Assist & Airless Finishing		
7. Application is for: ☒ New Construction ☐ Modification* ☐ Change of Owner*		For modification or change of owner: *Current Permit Number: _____
8. Type of Organization (check one): ☐ Individual Owner ☐ Partnership ☐ Corporation ☐ Utility ☐ Local Agency ☐ State Agency ☒ Federal Agency		
9. Distances (feet and direction to closest): 11,088 S Fenceline; 38,016 S Residence; 36,432 S Business; 50,160 S School		
10. General Nature of Business: Space Exploration	11. Principal Product: Data	
12. Facility Annual Throughput by Quarters (percent): 0 % Jan-Mar; 50 % Apr-Jun; 50 % Jul-Sep; 0 % Oct-Dec	13. Expected Operating Hours: 4 Hrs/Day; 3 Days/Wk; 12 Wks/Yr; 144 Total Hrs/Yr	
14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? ☐ Yes ☐ No		
15. Signature of Responsible Official: Donald Westbrook	Official Title: Complex Manager	
Typed or Printed Name of Responsible Official: Donald Westbrook	Phone Number: 760/255-8423	Date Signed: 7/18/17

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*
MDAQ 2092	441659/MD7858	P012833	133/611

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
SPRAY BOOTH AND PAINT SPRAY GUN APPLICATION, continued

16. EQUIPMENT INFORMATION:

Manufacturer: Binkks

Model No.: MX1231 Pump System Serial No.: N/A

Booth Dimensions (specify units): W: N/A by L: N/A by H: N/A

☒ Open Spray (Gun) ☐ Automotive Booth ☐ Bench Type Booth ☐ Floor Type Booth

Exhaust Fan (if present): Rating (hp): N/A Fan Diameter (inches): N/A

Manometer across exhaust filters? ☐ Yes ☐ No Minimum Pressure Drop (in inches of water): ____

17. FILTERS:

	Type and Material	Number	Width	Length	Thickness
Inlet	N/A				
Exhaust First Stage	N/A				
Exhaust Second Stage	N/A				
Exhaust Third Stage	N/A				

18. APPLICATION

Article Sprayed (check all that apply):

☐ Aerospace ☒ Architectural ☐ Metal ☐ Plastic ☐ Composite ☐ Wood

☐ Motor Vehicle (Group I) ☐ Motor Vehicle (Group II) ☐ Other (specify): ____

Minimum size of articles sprayed (feet): ____ Width ____ Length ____ Height

Method of Application (check all that apply):

☐ Air Atomization ☐ Pressure Atomization (Airless) ☐ Combined Air and Airless ☐ Electrostatic

☒ High Volume Low Pressure (HVLP) ☐ Hand ☐ Other (specify): ____

Gun or Spray System Cleaning Method:

☐ Enclosed Gun Cleaning System ☒ Open Flush ☒ Manual Wipe ☐ Other (specify): ____

19. DISPOSITION

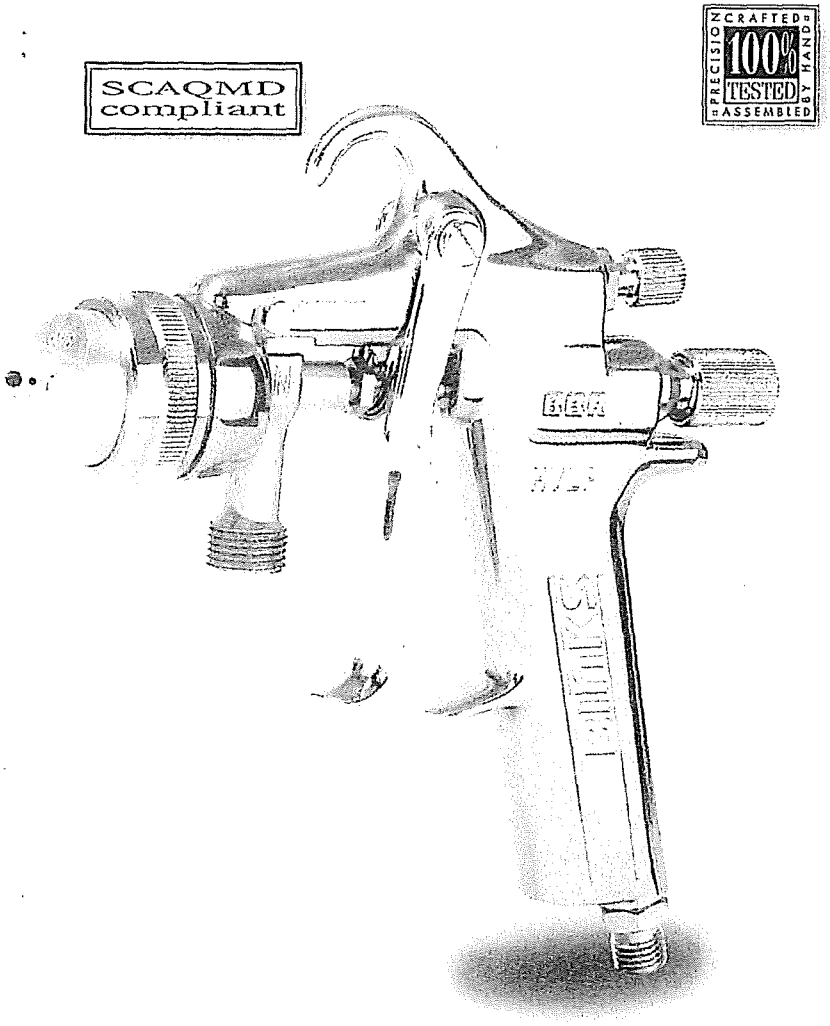
☒ Air Dried ☐ Oven Dried, Baked or Cured, specify: ☐ Part of Booth ☐ Separate Enclosure

Oven (if present) is: ☐ Gas Fired ☐ Electric Rating and max T (specify units): ____

20. MATERIALS APPLIED

Type	VOC Content lb/gal or gm/liter	Vapor Pressure mmHg @ 20° C	Maximum Use gal/l per day	Maximum Use gal/l per year
Enamel	0			
Topcoat	0		2 gal/day	25 gal/year
Primer	0		2 gal/day	25 gal/year
Sealer	0			
Stain	0			
Added Thinner	0			
Clean-Up Solvent				
Surface Preparation Solution				
Other: Cleaning solvent before painting	8		0.5 gal/year	15 gal/year
Other:				
Other: ALL COATINGS USED	WITH THIS	EQUIPMENT IS	WATER BASED	0 VOCs

MACH 1 HVLP



The MACH 1 is a full size HVLP spray gun with special nozzles and modifications that allow it to operate at high transfer efficiencies in compliance with the California South Coast Air Quality Management District (SCAQMD) regulations as a high volume low pressure (HVLP) air spray gun.

Constructed of a lightweight drop-forged aluminum body and stainless steel fluid passages, including long life self-adjusting packings, this spray gun is designed to stand up under hard, continuous use. It operates like a conventional spray system utilizing compressed shop air.

Technical Specifications

Body:	Drop-forged aluminum
Weight:	20.1 Oz.
Air Inlet:	1/4" NPS (m)
Fluid Inlet:	3/8" NPS (m)
Fluid Passages:	Stainless Steel
Feed Type:	Pressure / Siphon Feed
Part Sheet:	2463
Gun Repair Kit:	54-3605

Most Popular Nozzle Set Ups:

MACH 1 94 - 94P
MACH 1 94 - 93P
MACH 1 92 - 94P
MACH 1 91 - 94P
Standard Fluid Nozzle and Needle are 303 Stainless Steel

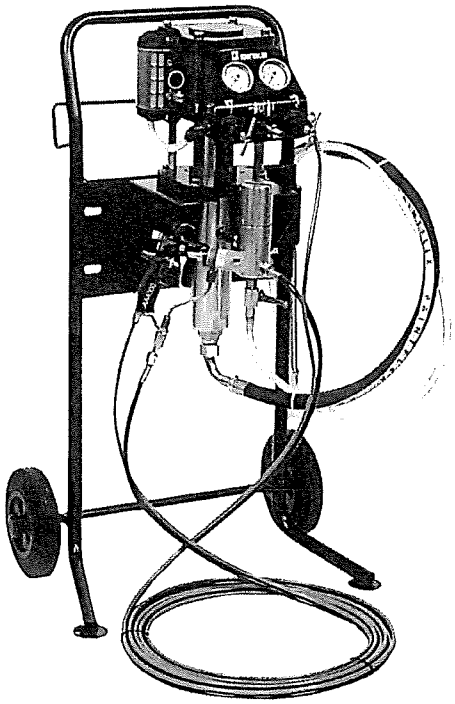
See page 16 for additional standard and specialty fluid nozzle recommendations.

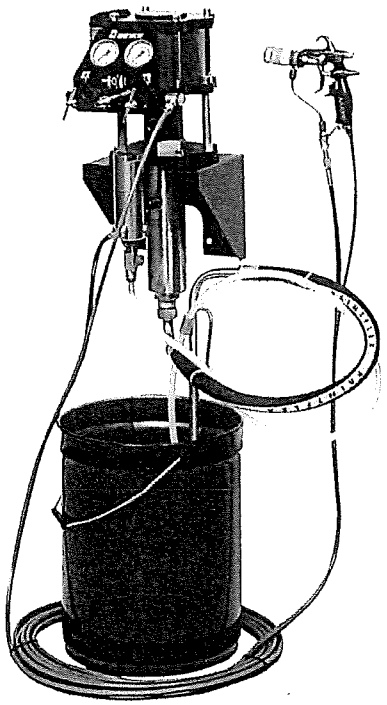
CE ⟨Ex⟩

MX1231

31:1 PUMP SYSTEMS FOR AIR ASSIST & AIRLESS FINISHING

Patent 7,603,355





SPECIFICATIONS	
Ratio:	31:1
Maximum air inlet pressure:	8 bar [116 psi]
Maximum fluid pressure:	248 bar [3596 psi]
Displacement per cycle:	72 cc [02.4 oz]
Output @ 60 cycles/min:	4.3 L/m [1.2 gal/m]
Air consumption @ 20 cycles/min and 8 bar [116 psi] air inlet pressure:	498 LPM [17.6 SCFM]
Maximimum recommended continuous cycle rate:	20 cycles/min
Air inlet connection:	3/8" BSP(f) and 1/4" NPS(m)
Air piston diameter:	140 mm [5.5 in]
Stroke length:	75 mm [3.0 in]
Fluid inlet connection:	3/4" NPS(m)
Fluid outlet connection:	3/8" BSP(m) / 3/8" NPS(m)
Wetted parts materials of construction:	Stainless Steel, Tungsten Carbide, Hard Chrome, PTFE, Polyethylene, Leather
Sound level:	97.3 dB

In this part sheet, the words **WARNING, CAUTION** and **NOTE** are used to emphasize important safety information as follows:

⚠ WARNING

Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

⚠ CAUTION

Hazards or unsafe practices which could result in minor personal injury, product or property damage.

NOTE

Important installation, operation or maintenance information.

⚠ WARNING

Read the following warnings before using this equipment.

READ THE MANUAL
Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.

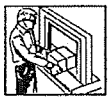
OPERATOR TRAINING
All personnel must be trained before operating finishing equipment.

EQUIPMENT MISUSE HAZARD
Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.

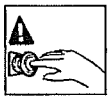
LOCK OUT / TAG-OUT
Failure to de-energize, disconnect, lock out and tag-out all power sources before performing equipment maintenance could cause serious injury or death.

AUTOMATIC EQUIPMENT
Automatic equipment may start suddenly without warning.

PRESSURE RELIEF PROCEDURE
Always follow the pressure relief procedure in the equipment instruction manual.



KEEP EQUIPMENT GUARDS IN PLACE
Do not operate the equipment if the safety devices have been removed.



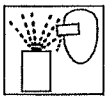
KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY

WEAR SAFETY GLASSES
Failure to wear safety glasses with side shields could result in serious eye injury or blindness.

INSPECT THE EQUIPMENT DAILY
Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.

NEVER MODIFY THE EQUIPMENT
Do not modify the equipment unless the manufacturer provides written approval.

NOISE HAZARD
You may be injured by loud noise. Hearing protection may be required when using this equipment.



PROJECTILE HAZARD
You may be injured by venting liquids or gases that are released under pressure, or flying debris.

PINCH POINT HAZARD
Moving parts can crush and cut. Pinch points are basically any areas where there are moving parts.

STATIC CHARGE
Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.

WEAR RESPIRATOR
Toxic fumes can cause serious injury or death if inhaled. Wear a respirator as recommended by the fluid and solvent manufacturer's Material Safety Data Sheet.

TOXIC FLUID & FUMES
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, injected or swallowed. LEARN and KNOW the specific hazards or the fluids you are using.

FIRE AND EXPLOSION HAZARD
Improper equipment grounding, poor ventilation, open flame or sparks can cause a hazardous condition and result in fire or explosion and serious injury.

MEDICAL ALERT
Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- Go to an emergency room immediately.
- Tell the doctor you suspect an injection injury.
- Show the doctor this medical information or the medical alert card provided with your airless spray equipment.
- Tell the doctor what kind of fluid you were spraying or dispensing.

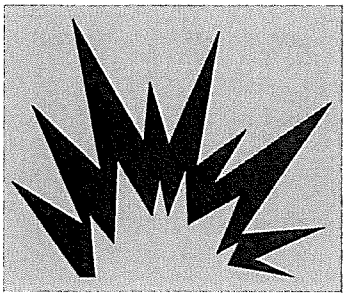
GET IMMEDIATE MEDICAL ATTENTION
To prevent contact with the fluid, please note the following:

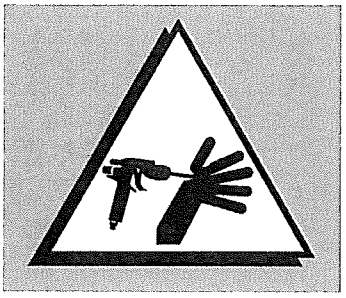
- Never point the gun/valve at anyone or any part of the body.
- Never put hand or fingers over the spray tip.
- Never attempt to stop or deflect fluid leaks with your hand, body, glove or rag.
- Always have the tip guard on the spray gun before spraying.
- Always ensure that the gun trigger safety operates before spraying.

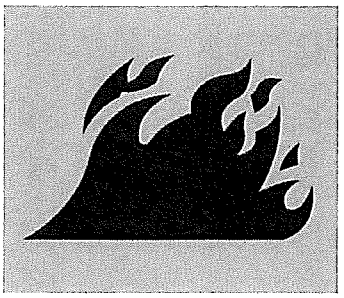
PROP 65 WARNING
WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT. FOR FURTHER SAFETY INFORMATION REGARDING THIS EQUIPMENT, SEE THE GENERAL EQUIPMENT SAFETY BOOKLET (77-5300).

⚠ WARNING







HIGH PRESSURE CAN CAUSE SERIOUS INJURY IF EQUIPMENT IS INSTALLED OR USED INCORRECTLY—READ, UNDERSTAND, AND OBSERVE ALL WARNINGS AND INSTRUCTIONS IN THIS MANUAL.

INSTALL, OPERATE OR SERVICE THIS EQUIPMENT ONLY AFTER ALL INSTRUCTIONS ARE CLEARLY UNDERSTOOD.

It is the responsibility of the employer to place this information into the hands of the operator.

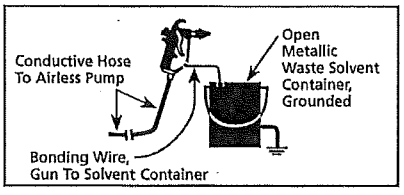
⚠ WARNING
Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

⚠ CAUTION
Hazards or unsafe practices which could result in minor personal injury, product or property damage.

NOTE
Important installation, operation or maintenance information.

AVOID STATIC SPARKING

1. Use Binks **NO-WIRE** conductive hose in all airless spraying operations. Be sure the gun and hose have continuity.
2. Make sure the pump is grounded. **NEVER** operate the unit when it is on a non-grounded platform.
3. When flushing or cleaning with a combustible solvent, always use an open metallic container for receiving the waste solvent. Ground the solvent receptacle.
4. **ALWAYS** remove spray tip when flushing the system. Operate the pump at the lowest possible pressure.



GENERAL WARNINGS

1. **NEVER** leave a pressurized sprayer unattended.
2. Periodically inspect all hoses for leaks and/or abrasions and tighten all connections before use. **DO NOT ATTEMPT TO REPAIR** a defective hose. **REPLACE** it with another conductive hose.
3. **ALWAYS** relieve pressure in the system by turning bypass valve to **BYPASS** or triggering spray gun before disassembly of any component parts.

CAUTION
Never store de-ionized, distilled, reverse osmosis or any pure grade of water in the pump. These fluids may cause corrosion.

NOTE
BINKS is not responsible for misapplication of pumps. Consult your BINKS representative for application assistance.

NOTE
Be sure that all fluids, solvents and fillers to be used are chemically and physically compatible with wetted parts in the pump. Consult your BINKS representative for pump materials of constructions and compatibility information. Consult the fluid manufacture for information regarding the fluids to be used.

REPLACEMENT PARTS

The pump is designed to use authorized parts only. When using this pump with parts that do not comply with the minimum specifications and safety devices of Binks, the user assumes all risks and liabilities.

⚠ WARNING
EXCESSIVE AIR PRESSURE
Can cause personal injury, pump damage or property damage. Do not exceed maximum inlet air pressure as stated on motor model plate.

HAZARD	CAUSE	SAFEGUARDS
EXPLOSION 	STATIC ELECTRICITY Use of this equipment in a potentially explosive atmosphere. Vapors from flammable liquids can catch fire or explode from static electricity discharges.	1. If installing this equipment in a potentially explosive atmosphere, check the ATEX equipment category and temperature ratings meet the requirements for the zoned area. 2. Check electrical continuity of the air supply to earth — should be no greater than 10^6 Ω. 3. Electrically bond all metallic equipment to earth. Should be no greater than 1 Ω.
SPECIAL CONDITIONS FOR SAFE USE REQUIRED BY ATEX CERTIFICATION	Over pressurization of equipment can cause equipment failure or injury. Use lubricating medium resistant to carburisation. Improper operation or maintenance may create a hazard.	1. Do not exceed the stated maximum working pressures and motor speed as specified in this manual. 2. Only a suitably approved static dissipating or conductive air supply hoses shall be attached to the equipment and terminated to the air supply. 3. Air supplies (compressors, etc.) shall be sited in a non-hazardous area with a filter on the air intake system to prevent the ingress of dust or similar foreign material into the parts where compression takes place. 4. Use lubricating medium resistant to carburisation and has an auto ignition temperature of more than 185°C for T4 equipment. 5. User shall ensure all metallic parts of the equipment are suitably bonded to earth. Should be no greater than 1 Ω.

EC Declaration of Conformity CE Ex

We: Finishing Brands, Ringwood Rd., Bournemouth, Dorset, BH11 9LH, UK

As the manufacturer of the items listed below:

Piston Pumps MX1231

Declare, under our sole responsibility, that, the equipment to which this document relates is in conformity with the following standards or other normative documents:

EN 13463-1:2009, EN 13463-5:2005, EN 982:1996 + A1:2008, EN 983:1996 + A1:2008 and EN 12621:2006

And thereby conform to the protection requirements of Council Directive 98/37/EC relating to ***Machinery Safety Directive*** and council Directive 94/9/EC relating to ***Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres;***

CE Ex 2 II Gc T4

Issued on: 1st July 2009

Authorized by:

General Manager

Technical file lodged with;
TRL Compliance Ltd (Notified Body 0891)
Moss View
Nipe Lane
Up Holland
WN8 9PY, UK

STARTUP AND OPERATION

(Part numbers referenced are contained in the MX1231 bare pump assemblies part sheet: 77-2918.)

GROUNDING THE BINKS PUMP

⚠WARNING

To prevent static charging igniting the flammable spray material, the BINKS pump must be grounded before it is started up. A grounding cable is included with the pump.

1. Clamp the grounding cable to the terminal on the high pressure filter or the air motor.
2. Connect the other end of the grounding cable to a suitable grounding device (e.g. grounding bar).

PREPARING TO START UP THE BINKS PUMP

Proceed as follows:

1. Check that the solvent cup is full to the level shown. If necessary, add material to the solvent cup. (Order part no. 0114-009433 for solvent based paint, and part no. 0114-014871 for waterborne paint.)

2. Select a suitable filter element using the table in this manual (page 9) and insert it into to the high pressure filter.
3. Attach a suitable fluid hose to the outlet fitting on the high pressure filter.

⚠WARNING

The fluid hose supplied by BINKS is identified with the maximum permitted working pressure and the bursting pressure. The lesser value—the maximum permitted working pressure—must be greater than the maximum permitted working pressure of the pump.

4. Connect the gun—designed at least for the maximum permitted working pressure of the pump—to the fluid hose.
5. Make sure that the ball valve on the air control assembly is closed.
6. Connect the compressed air supply to the air inlet connection.
7. The pump is equipped with an air pressure regulator. Before putting the pressure line into operation, relieve the pressure regulator by fully unscrewing the regulating screw. Thereafter rotate the regulating screw clockwise until the pressure gauge on the regulator indicates the required pressure.

NOTE

The pump is equipped with an air pressure safety valve set at 8 bar (116 psi).

RINSING THE BINKS PUMP

⚠WARNING

Wear eye protection.

Every BINKS pump is tested with water during final inspection and thoroughly rinsed with a non-gumming preservative oil. With this rinsing process, it is possible that the residual moisture of water emulsion will be left in the pump.

Before the unit is started up for the first time, a suitable solvent must be used to thoroughly rinse out the remains of the preservative fluid and the unavoidable impurities introduced during equipment assembly.

Proceed as follows:

1. Prepare the BINKS pump for start-up as shown above.
2. Close the high pressure ball valve on the fluid filter.
3. Immerse the siphon kit in the tank of solvent.
4. Insert the return flow hose into the tank of solvent. Open the high pressure ball valve on the fluid filter.
5. Open the ball valve and set the air regulator to approximately 1 bar (14.5 psi). The siphon kit now draws in the solvent. The solvent runs back to the solvent tank through the high pressure filter, the high pressure ball valve and the return flow hose.
6. Remove the spray tip from the gun and point the gun into the tank. Unlock the safety lever on the gun, operate the gun and close the high pressure ball valve. The solvent will now flow through the high pressure filter, the fluid hose and the gun, back into the tank. The time of rinsing depends on the length of the material lines and the solubility of the spray material. We recommend a short reflush with "fresh" solvent.
7. Release the gun trigger.
8. Slowly increase the pressure at the regulator to maximum working pressure while checking and testing that all lines and screw and plug caps are tightly sealed. If there are any leaks in the system, shut down the BINKS pump immediately. Only re-start the BINKS pump once you have repaired the leak.
9. Reduce the air pressure at the air regulator again and close the ball valve.
10. Make sure that the return flow hose is still directed into the solvent tank. Carefully open the high pressure ball valve to reduce the pressure in the fluid hose and in the high pressure filter.
11. Point the gun into the tank of solvent and operate the trigger, to reduce any pressure which may still exist in the fluid hose and in the gun.

⚠CAUTION

If working with waterborne material, the BINKS pump must again be thoroughly rinsed with water before it is started up.

START-UP

1. Prepare the BINKS pump for start-up as shown above and if necessary, rinse pump.
2. Close the high pressure ball valve on the fluid filter.
3. Immerse the siphon kit in the spray material to be used.
4. Place the return flow hose in the tank. Then open the high pressure ball valve.
5. Open the ball valve for the compressed air supply and use the pressure regulator to set the compressed air supply to 1 bar (14.5 psi). The pump will now draw in the spray material. The spray material

(continued on next page)

STARTUP AND OPERATION

flows back into the tank through the high pressure filter, the high pressure ball valve and the return pipe.

6. Remove the spray tip from the gun and point the gun into the tank. Unlock the safety lever on the gun. Operate the gun trigger and close the high pressure ball valve. The spray material will now flow through the high pressure filter, the fluid hose and the gun, back into the tank.
7. Release the gun trigger and set the working pressure at the regulator.

NOTE

Before carrying out any coating work, we recommend a test spray (e.g. on to paper or wood). Only if the test gives you the desired result should you start to coat the actual object.

WORK STOPPAGES

⚠CAUTION

If working with 2-K spray material, you must note the given pot life and follow it precisely. Within this time, the unit must be carefully cleaned and rinsed with the recommended solvent. There must be no residue left in the pump, the high pressure filter or the gun.

⚠CAUTION

When work is stopped, the safety lever of the gun must be locked.

For work stoppages of between 10 and 30 minutes, please proceed as follows:

⚠WARNING

Wear eye protection.

1. Lock the safety lever on the gun.
2. Shut off the compressed air supply by closing the ball valve.
3. Briefly open the high pressure ball valve, taking care that the return flow hose is not pointed at other people or at yourself, until the pressure has reduced. Then close the high pressure ball valve again.
4. Clean the outside of the spray nozzle from spray material residue.

SHUT-DOWN

⚠CAUTION

Once work is completed, the BINKS pump must be thoroughly cleaned. Under no circumstances must you allow paint residue to dry out in the unit. To clean the pump, use a solvent appropriate to the spray material.

⚠WARNING

Wear eye protection.

1. Close the ball valve for the compressed air supply.
2. Make sure that the flow hose is still directed into the spray material tank. Carefully open the high pressure ball valve to reduce the pressure in the pump and in the high pressure filter.
3. Remove the spray tip from the gun.
4. Point the gun into the tank of spray material and operate the trigger to reduce any pressure which may still exist in the fluid hose and in the gun.
5. Lock the safety lever on the gun.
6. Remove the siphon kit from the spray material.

CLEANING YOUR BINKS PUMP

⚠CAUTION

Do not allow spray material or solvent to soak into the ground.

⚠WARNING

Wear eye protection.

1. Clean the pump and the siphon kit from the outside. Immerse the suction system in the tank of solvent.
2. Clean the fluid tip/tip system as described in the service bulletin of the spray gun. We recommend to soak the fluid tip in solvent.
3. Unlock the safety lever of the gun without fluid tip. Operate the gun. Close the high pressure ball valve. Set the air inlet pressure to 1 bar (14.5 psi) and slowly open the ball valve. Let the solvent run through the system so that the spraying material can rinse out.
4. Let the solvent run through the system for a couple of minutes until the solvent runs clear through the gun. Close the ball valve and lock the safety lever of the gun
5. Clean the gun from the outside and check the filter on the handle (if mounted).
6. Clean the filter element of the high pressure filter.
7. Clean the filter of the siphon kit.
8. We recommend keeping the pump filled with liquid.

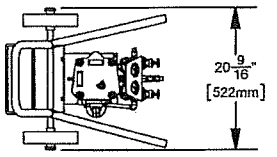
NOTE

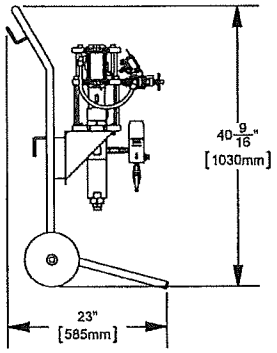
If the pump is not to be used for longer periods of time, we recommend flushing the system with a light, silicone-free oil.

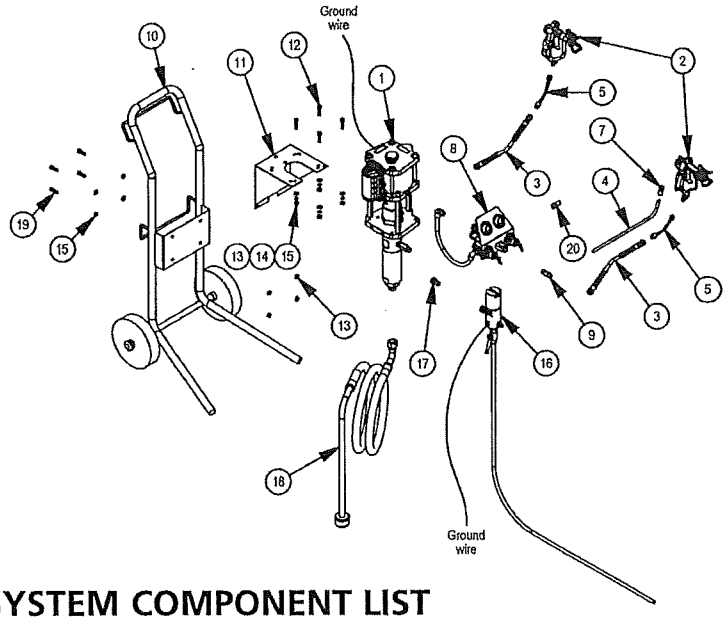
MX1231 CART MOUNTED SYSTEMS

MX1231 ___ ___ – ___ ___ ___ ___

SEALS	SPRAY GUN	AIR CONTROL	FILTER	SIPHON	HOSE
PL = PTFE / Leather	0 = none	0 = none	0 = none	0 = none	00 = none
PP = PTFE	G = AA4400 Flat Tip	D = Air Control	1 = 100 mesh	S = 5 gallon	25 = 25 ft / whip
PU = PTFE / UHMW	H = AA4400 Twist Tip		2 = 200 mesh	T = 55 gallon	50 = 50 ft / whip
UC = U-Cups	P = Airless 75				







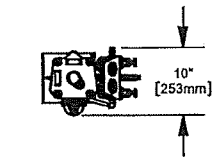
SYSTEM COMPONENT LIST

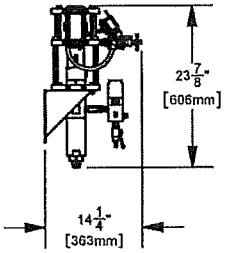
ITEM NO.	PART NUMBER	DESCRIPTION	QTY	PART SHEET
1	MX1231PL	BARE PUMP ASSEMBLY (PTFE/LEATHER)	1 IF SEAL TYPE = PL	77-2918
	MX1231PP	BARE PUMP ASSEMBLY (PTFE)	1 IF SEAL TYPE = PP	
	MX1231PU	BARE PUMP ASSEMBLY (PTFE/UHMW)	1 IF SEAL TYPE = PU	
	MX1231UC	BARE PUMP ASSEMBLY (U-CUPS)	1 IF SEAL TYPE = UC	
2	0909-4400-HF0000	AA4400 GUN ASSEMBLY (FLAT TIP HOLDER)	1 IF GUN TYPE = G	77-2922
	114-01310	FLAT SPRAY TIP (1310)	1 IF GUN TYPE = G	
	0909-4400-HT0000	AA4400 GUN ASSEMBLY (TWIST TIP HOLDER)	1 IF GUN TYPE = H	77-2922
	9-613-75	TWIST SPRAY TIP (613)	1 IF GUN TYPE = H	
	0811-7500-1	AIRLESS 7500 GUN ASSEMBLY	1 IF GUN TYPE = P	77-2950
	9-515-75	TWIST SPRAY TIP (515)	1 IF GUN TYPE = P	
3	71-4830	MATERIAL HOSE (1/4" ID X 25', 4000 PSI)	1 IF HOSE LENGTH = 25	
	71-4831	MATERIAL HOSE (1/4" ID X 50', 4000 PSI)	1 IF HOSE LENGTH = 50	
4	71-4803	AIR HOSE (3/8" OD TUBE X 28FT)	1 IF HOSE LENGTH = 25	
	71-4804	AIR HOSE (3/8" OD TUBE X 53FT)	1 IF HOSE LENGTH = 50	
5	71-6844	MATERIAL HOSE (1/8" ID X 3', 5000 PSI)	1 IF HOSE LENGTH = 25 / 50	
6	72-2332	SWIVEL ADAPTER (1/4" NPS M X F) [NOT SHOWN]	1 IF GUN TYPE = P	
7	54-4976	ADAPTER FITTING (3/8" OD TUBE X 1/4" NPS F)	1 IF GUN TYPE = G / H	
8	0115-010180	AIR CONTROL ASSEMBLY	1 IF AIR CONTROL = D	
9	83-4233	DM NIPPLE (1/4" NPS/NPT X 3/8" NPS/NPT)	1 IF AIR CONTROL = D	
10	0115-010186	TROLLEY ASSEMBLY	1	
11	0115-010179	PUMP BRACKET	1	
12	0115-010001	SOCKET HEAD CAP SCREW (M8 X 35mm)	4	
13	0115-010030	HEX NUT (M8)	8	
14	0115-010031	LOCK WASHER (M8)	4	
15	0115-010035	FLAT WASHER (M8)	8	
16	0115-010326	S.S. FILTER ASSEMBLY (100 MESH)	1 IF FILTER TYPE = 1	
	0115-010630	S.S. FILTER ASSEMBLY (200 MESH)	1 IF FILTER TYPE = 2	
17	103-1238	SWIVEL ADAPTER (3/8" NPS F X 1/4" NPT/NPS M)	1 IF NO FILTER	
18	41-17262	SIPHON TUBE ASSEMBLY (5 GALLON)	1 IF SIPHON SIZE = S	
	0115-010381	SIPHON TUBE ASSEMBLY (55 GALLON)	1 IF SIPHON SIZE = T	
19	0115-010227	SOCKET HEAD CAP SCREW (M8 X 25)	4	
20	85-521	SWIVEL ELBOW (3/8" OD TUBE X 1/4" NPT)	1 IF AIR CONTROL = D	

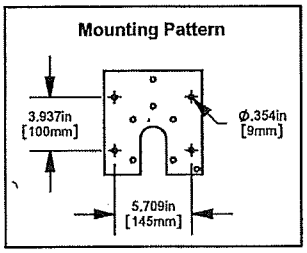
MX1231 WALL MOUNTED SYSTEMS

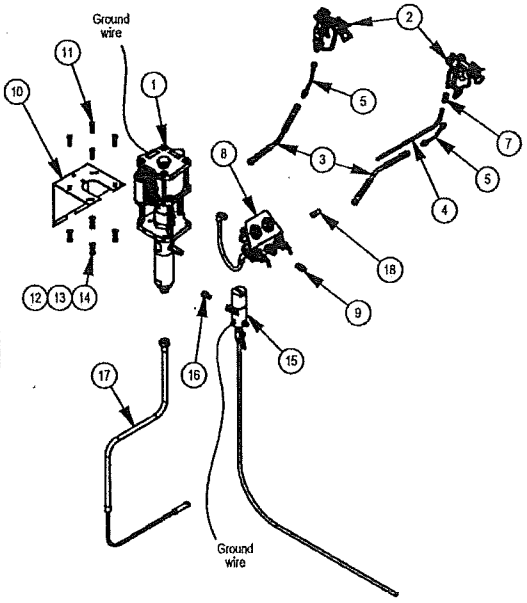
MX1231 ___ ___ – ___ W ___ ___ ___

SEALS	SPRAY GUN	AIR CONTROL	FILTER	SIPHON	HOSE
PL = PTFE / Leather	0 = none	0 = none	0 = none	0 = none	00 = none
PP = PTFE	G = AA4400 Flat Tip	D = Air Control	1 = 100 mesh	S = 5 gallon	25 = 25 ft / whip
PU = PTFE / UHMW	H = AA4400 Twist Tip		2 = 200 mesh	T = 55 gallon	50 = 50 ft / whip
UC = U-Cups	P = Airless 75				









SYSTEM COMPONENT LIST

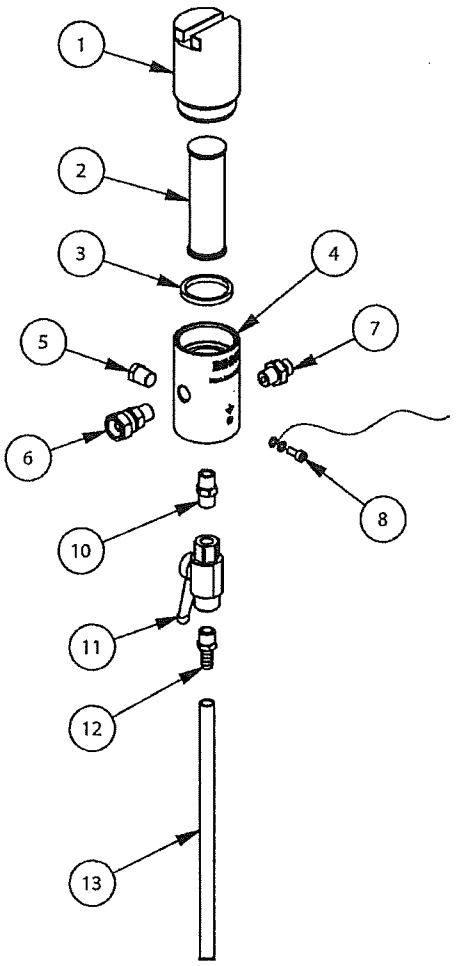
ITEM NO.	PART NUMBER	DESCRIPTION	QTY	PART SHEET
1	MX1231PL	BARE PUMP ASSEMBLY (PTFE/LEATHER)	1 IF SEAL TYPE = PL	77-2918
	MX1231PP	BARE PUMP ASSEMBLY (PTFE)	1 IF SEAL TYPE = PP	
	MX1231PU	BARE PUMP ASSEMBLY (PTFE/UHMW)	1 IF SEAL TYPE = PU	
	MX1231UC	BARE PUMP ASSEMBLY (U-CUPS)	1 IF SEAL TYPE = UC	
2	0909-4400-HF0000	AA4400 GUN ASSEMBLY (FLAT TIP HOLDER)	1 IF GUN TYPE = G	77-2922
	114-01310	FLAT SPRAY TIP (1310)	1 IF GUN TYPE = G	
	0909-4400-HT0000	AA4400 GUN ASSEMBLY (TWIST TIP HOLDER)	1 IF GUN TYPE = H	77-2922
	9-613-75	TWIST SPRAY TIP (613)	1 IF GUN TYPE = H	
	0811-7500-1	AIRLESS 75 GUN ASSEMBLY	1 IF GUN TYPE = P	77-2950
	9-515-75	TWIST SPRAY TIP (515)	1 IF GUN TYPE = P	
3	71-4830	MATERIAL HOSE (1/4" ID X 25', 4000 PSI)	1 IF HOSE LENGTH = 25	
	71-4831	MATERIAL HOSE (1/4" ID X 50', 4000 PSI)	1 IF HOSE LENGTH = 50	
4	71-4803	AIR HOSE (3/8" OD TUBE X 28FT)	1 IF HOSE LENGTH = 25	
	71-4804	AIR HOSE (3/8" OD TUBE X 53FT)	1 IF HOSE LENGTH = 50	
5	71-6844	MATERIAL HOSE (1/8" ID X 3', 5000 PSI)	1 IF HOSE LENGTH = 25 / 50	
6	72-2332	SWIVEL ADAPTER (1/4" NPS M X F) [NOT SHOWN]	1 IF GUN TYPE = P	
7	54-4976	ADAPTER FITTING (3/8" OD TUBE X 1/4" NPS F)	1 IF GUN TYPE = G / H	
8	0115-010180	AIR CONTROL ASSEMBLY	1 IF AIR CONTROL = D	
9	83-4233	DM NIPPLE (1/4" NPS/NPT X 3/8" NPS/NPT)	1 IF AIR CONTROL = D	
10	0115-010179	PUMP BRACKET	1	
11	0115-010001	SOCKET HEAD CAP SCREW (M8 X 35mm)	4	
12	0115-010030	HEX NUT (M8)	4	
13	0115-010031	LOCK WASHER (M8)	4	
14	0115-010035	FLAT WASHER (M8)	4	
15	0115-010326	S.S. FILTER ASSEMBLY (100 MESH)	1 IF FILTER TYPE = 1	
	0115-010630	S.S. FILTER ASSEMBLY (200 MESH)	1 IF FILTER TYPE = 2	
16	103-1238	SWIVEL ADAPTER (3/8" NPS F X 1/4" NPT/NPS M)	1 IF NO FILTER	
17	41-17262	SIPHON TUBE ASSEMBLY (5 GALLON)	1 IF SIPHON SIZE = S	
	0115-010381	SIPHON TUBE ASSEMBLY (55 GALLON)	1 IF SIPHON SIZE = T	
18	85-521	SWIVEL ELBOW (3/8" OD TUBE X 1/4" NPT)	1 IF AIR CONTROL = D	

STAINLESS STEEL HIGH PRESSURE FILTER ASSEMBLIES

0115-010326 (100 MESH FILTER ELEMENT)
0115-010630 (200 MESH FILTER ELEMENT)

SPECIFICATIONS	
Max working pressure:	272 bar [3945 psi]
Fluid inlet connection:	3/8" BSP (f)
Fluid outlet connection:	1/4" NPS (m)
Wetted parts materials of construction:	Stainless Steel, PTFE

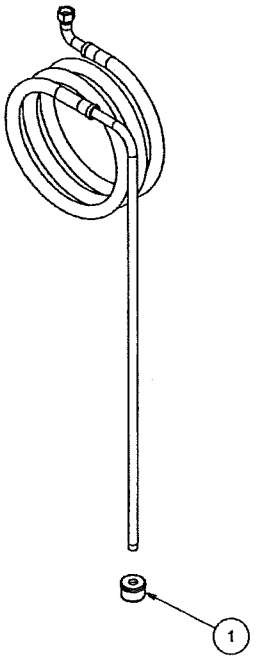
Additional filter mesh sizes (sold separately):
For 50 mesh order: 0110-009131



PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	0115-010326 QTY	0115-010630 QTY
1	0115-010399	FILTER CAP	1	1
2	0110-009134	200 MESH FILTER ELEMENT	0	1
	0110-009132	100 MESH FILTER ELEMENT	1	0
3	0114-016061	GASKET	1	1
4	0115-010398	FILTER HOUSING	1	1
5	0115-010600	PLUG	1	1
6	0114-016058	SWIVEL CONNECTING NIPPLE	1	1
7	0114-016059	OUTLET SCREW	1	1
8	0114-016243	GROUND WIRE KIT	1	1
10	0114-019090	OUTFLOW FITTING	1	1
11	0114-019091	HIGH PRESSURE BALL VALVE	1	1
12	0114-019985	HOSE CONNECTION	1	1
13	0115-010327	FILTER DRAIN HOSE	1	1

SYSTEM ACCESSORIES



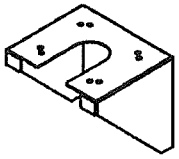
0115-010381 55-GALLON SIPHON KIT
and
41-17262 5-GALLON SIPHON KIT

PARTS LIST

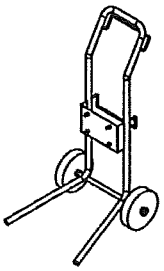
When ordering, please specify Part No.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	41-2661	1/2 NPSM x 30 MESH S.S. STRAINER.	1

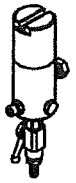
ACCESSORIES FOR YOUR MX1231 PUMP



BRACKET
0115-010179

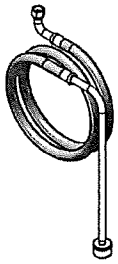


TROLLEY ASSEMBLY
0115-010186

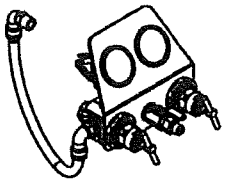


FLUID FILTER (100 MESH)
0115-010326

FLUID FILTER (200 MESH)
0115-010630

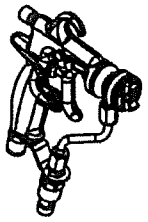


SIPHON KITS
41-17262 (5 GAL)
0115-010381 (55 GAL)



AIR CONTROLS
0115-010180

LUBRICATING OIL FOR
FLUID PUMP
0114-009433 (Solvent Based Materials)
0114-014871 (Water Based Materials)



AIR ASSIST SPRAY GUN

0909-4400-HF0000
(AA4400 Gun with flat tip)

0909-4400-HT0000
(AA4400 Gun with Twist Tip)

Service Bulletin 77-2922

WARRANTY POLICY

Binks products are covered by Finishing Brands one year materials and workmanship limited warranty. The use of any parts or accessories, from a source other than Finishing Brands, will void all warranties. For specific warranty information please contact the closest Finishing Brands location listed below.

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Binks is part of Finishing Brands, a global leader in innovative spray finishing technologies. For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations below.

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www.binks.com
info@carlisleft.com
Tel: 1-800-992-4657
Fax: 1-888-246-5732

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ventas@carlisleft.com.mx
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Fax: 011 52 55 5310 4790

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vendas@carlisleft.com.br
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Fax: 55 11 5641 1256

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Finishing Brands.
A CARLISLE COMPANY

SERVICE MANUAL
EN

AA4400M™ AIR-ASSIST AIRLESS SPRAY GUN

FLAT TIP

REVERSIBLE TWIST TIP

The following instructions provide the necessary information for the proper operation and preventive maintenance of the Binks AA4400M Air-Assist Airless Spray Gun. Please read and understand all information in this document in order to get the maximum performance from your new AA4400M spray gun.

In the AA4400M spray gun, the paint or other material to be sprayed is pre-atomized and forced through the carbide tip by the typical 110-262 bar [1,600-3,800 psi] fluid pressure (with capabilities up to 303 bar [4,400 psi]). As a result of the pre-atomizing, the final shaping air supplied by the air cap produces an exceptionally fine and even spray pattern. The result of this spray pattern is an even finish that lends itself to products that need an exceptionally fine finish with reduced overspray and VOC emissions.

SPECIFICATIONS:

Maximum Fluid Pressure:	303 bar [4,400 psi]
Maximum Air Pressure:	6.8 bar [100 psi]
Gun Body:	Forged Aluminum
Fluid Path:	Stainless Steel
Fluid Seat:	Tungsten Carbide Seat
Fluid Inlet Size:	1/4" NPS(m) Thread
Air Inlet Size:	1/4" BSP/NPS(m) Thread
Gun Weight:	490 g [17.28 oz.] (without Tip, Aircap, Guard)

1 bar [15 psi] is the maximum inlet air pressure for HVLP (1 bar [15 psi] max. for HVLP twist tip cap), or use 1.4-2.8 bar [20-40 psi] inlet air pressure for LVMP. The HVLP flat tip and twist tip air caps consume 230 L/m [8.3 SCFM] air at their respective maximum inlet air pressures. The LVMP flat tip and twist tip air caps consume 368 L/m [13 SCFM] at 2.1 bar [30 psi] inlet air pressure.

Product Description/Object of Declaration:	Air Assist Guns - 0909-xxxx-x
This Product is designed for use with:	Solvent and Water based Materials
Suitable for use in hazardous area:	Zone 1
Protection Level:	II 2 G X
Notified body details and role:	Element Materials Technology. WN8 9PN UK Lodging of Technical file
This Declaration of Conformity /incorporation is issued under the sole responsiblility of the manufacturer:	Carlisle Fluid Technologies, 320 Phillips Ave., Toledo, OH 43612

EU Declaration of Conformity CE (Ex)

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery Directive 2006/42/EC
ATEX Directive 2014/34/EU
by complying with the following statutory documents and harmonized standards:
EN ISO 12100:2010 Safety of Machinery - General Principles for Design
EN 13463-1:2009 Non electrical equipment for use in potentially explosive atmospheres - Basic methods and requirements
EN 1953:2013 Atomising and spraying equipment for coating materials. Safety requirements
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation: Directive 94/9/EC (until April 19th, 2016) and Directive 2014/34/EU (from April 20th, 2016)

Providing all conditions of safe use / installation stated within the product manuals have been complied with and also installed in accordance with any applicable local codes of practice.

Signed for and on behalf of Carlisle Fluid Technologies:	DJ Hasselschwert	14-Apr-16	(Vice President: Global Product Development) Toledo, OH 43612

4-3193R-1

⚠ WARNING

The spray gun must be earthed to dissipate any electrostatic charges which may be created by fluid or air flows. This can be achieved through the spray gun mounting, or conductive air/fluid hoses. Electrical bond from the spray gun to earth should be checked and a resistance of less than 10^6 Ohms is required.

In this part sheet, the words **WARNING, CAUTION** and **NOTE** are used to emphasize important safety information as follows:

⚠ WARNING	⚠ CAUTION	NOTE
Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.	Hazards or unsafe practices which could result in minor personal injury, product or property damage.	Important installation, operation or maintenance information.

WARNING

READ THE FOLLOWING WARNINGS BEFORE USING THIS EQUIPMENT.

MEDICAL ALERT
Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:
a) Go to an emergency room immediately.
b) Tell the doctor you suspect an injection injury.
c) Show the doctor this medical information or the medical alert card provided with your airless spray equipment.
d) Tell the doctor what kind of fluid you were spraying or dispensing.
e) Refer to the Safety Data Sheet for specific information.

READ THE MANUAL
Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.

OPERATOR TRAINING
All personnel must be trained before operating finishing equipment.

EQUIPMENT MISUSE HAZARD
Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.

DE-ENERGIZE, DEPRESSURIZE, DISCONNECT AND LOCK OUT ALL POWER SOURCES DURING MAINTENANCE
Failure to De-energize, disconnect and lock out all power supplies before performing equipment maintenance could cause serious injury or death.

HIGH PRESSURE CONSIDERATION
High pressure can cause serious injury. Relieve all pressure before servicing. Spray from the spray gun, hose leaks, or ruptured components can inject fluid into your body and cause extremely serious injury.

PRESSURE RELIEF PROCEDURE
Always follow the pressure relief procedure in the equipment instruction manual.

KEEP EQUIPMENT GUARDS IN PLACE
Do not operate the equipment if the safety devices have been removed.

KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY

WEAR SAFETY GLASSES
Failure to wear safety glasses with side shields could result in serious eye injury or blindness.

GET IMMEDIATE MEDICAL ATTENTION
To prevent contact with the fluid, please note the following:
a) Never point the gun/valve at anyone or any part of the body.
b) Never put hand or fingers over the spray tip.
c) Never attempt to stop or deflect fluid leaks with your hand, body, glove or rag.
d) Always have the tip guard on the spray gun before spraying.
e) Always ensure that the gun trigger safety operates before spraying.
f) Always lock the gun trigger safety when you stop spraying.

INSPECT THE EQUIPMENT DAILY
Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.

NEVER MODIFY THE EQUIPMENT
Do not modify the equipment unless the manufacturer provides written approval.

STATIC CHARGE
Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.

PINCH POINT HAZARD
Moving parts can crush and cut. Pinch points are basically any areas where there are moving parts.

WEAR RESPIRATOR
Toxic fumes can cause serious injury or death if inhaled. Wear a respirator as recommended by the fluid and solvent manufacturer's Safety Data Sheet.

TOXIC FLUID & FUMES
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, injected or swallowed. LEARN and KNOW the specific hazards or the fluids you are using.

NOISE HAZARD
You may be injured by loud noise. Hearing protection may be required when using this equipment.

PROJECTILE HAZARD
You may be injured by venting liquids or gases that are released under pressure, or flying debris.

PROP 65 WARNING
WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT.
FOR FURTHER SAFETY INFORMATION REGARDING BINKS AND DEVILBISS EQUIPMENT, SEE THE GENERAL EQUIPMENT SAFETY BOOKLET (77-5300).

WARRANTY POLICY

Binks products are covered by Carlisle Fluid Technologies one year materials and workmanship limited warranty. The use of any parts or accessories, from a source other than Carlisle Fluid Technologies, will void all warranties. For specific warranty information please contact the closest Carlisle Fluid Technologies location listed below.

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Binks is part of Carlisle Fluid Technologies, a global leader in innovative finishing technologies. For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations.

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vendas@carlisleft.com.br
Tel: +55 11 5641 2776
Fax: +55 11 5641 1256

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SPRAY GUN SET-UP

NOTE

Before proceeding, make sure trigger lock is engaged.

1. Connect your high-pressure fluid hose to the gun fluid inlet and tighten securely.
2. Connect your air hose to the gun air connection and tighten securely.
3. Slowly increase air to the pump to obtain a fluid pressure at the gun's lower end of the pressure range. A typical starting fluid pressure is 17 bar [250 psi]. Actual starting pressure points may be higher or lower than 17 bar [250 psi] and depend on the setup including the type of pump used, the type of material sprayed, and the spray gun itself.
4. Using the control knob on the air regulator, set the air pressure at zero.
5. To test the spraying pattern, spray a piece of wood or cardboard with a fast pass about one foot away from the surface. The results of the test will allow you to determine the uniformity of the particle size and spraying pattern.
6. If the spraying pattern develops tails or is not uniform, gradually increase the air pressure as necessary to develop a uniform spraying pattern. 1 bar [14 psi] is the maximum inlet air pressure for HVLP (1 bar [15 psi] max. for HVLP twist tip cap), or use 1.4-2.8 bar [20-40 psi] inlet air pressure for LVMP. **The HVLP flat tip and twist tip air caps consume 230 L/m [8.3 SCFM] air at their respective maximum inlet air pressures. The LVMP flat tip and twist tip air caps consume 368 L/m [13 SCFM] at 2.1 bar [30 psi] inlet air pressure.** The air is used to assist the atomization of the coating.
7. If the quality of spray is acceptable, begin spraying. If the spraying rate is too slow to keep up with the production line speed, or if the quantity of material sprayed is inadequate for acceptable coverage, gradually increase the fluid pressure in 3.4 bar [50 psi] increments using the fluid regulator control knob. However, note that as the fluid pressure increases, more air is needed to eliminate the tails.

Consistency in spraying can be increased across spray gun operators and similar spraying jobs by developing pressure standardization charts. Repeat step 6 until the required material coverage and spraying speed are achieved. If the maximum fluid pressure is reached before the required material coverage and spraying speed are achieved, you may need to switch to a larger fluid tip.

TYPICAL HOOK-UP

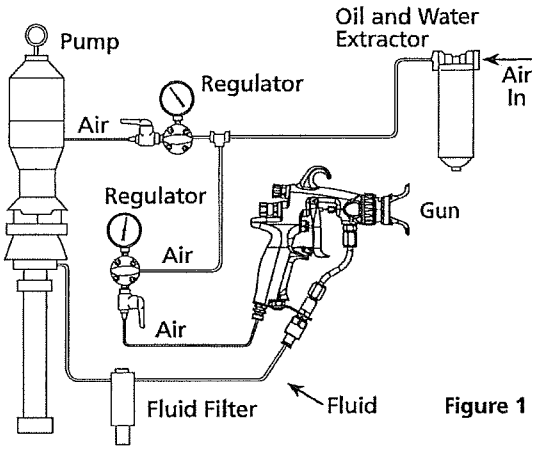
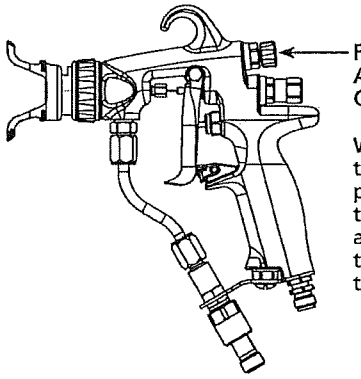


Figure 1

Fan pattern adjustment: turn knob counterclockwise to decrease pattern; clockwise to increase pattern (Fig. 2).



When using the twist tip air cap, the primary purpose of the fan pattern adjustment knob is to eliminate tails in the spray pattern.

Figure 2

NOTE

For HVLP spray, fan adjustment feature requires 1 bar [14 psi] max. of air inlet pressure (1 bar [15 psi] max. for HVLP twist tip.) For LVMP spray, fan adjustment requires approximately 1.4-2.8 bar [20-40 psi] of air inlet pressure. Higher fluid pressure requires higher air inlet pressures to accommodate pattern adjustment.

NOTE

Do not hang gun by trigger. This will cause needle damage or malfunction.

FLUID TIP SELECTION

Factors to consider in selecting a fluid tip for an air-assist airless spray gun include (1) the size of the parts being sprayed; (2) the production line speed; (3) the material flow rate and film thickness; (4) the viscosity of the material applied; (5) the type of material applied; and (6) the quality of atomization of the coating required. The selection of a fluid tip necessary to perform a specific spraying job is best determined through a combination of experimentation and expert advice from your material and equipment suppliers.

FLUID HOSES

Air-assist airless spray guns operate at fluid pressures higher than operating pressures of air spray guns. As a result, when operating an air-assist airless spray gun, it is critical to select the appropriate fluid hose that is rated for the pressure range at which the airless gun is operated.

TROUBLESHOOTING DEFECTIVE SPRAY PATTERNS

⚠ CAUTION

Always engage trigger lock and relieve fluid pressure before servicing gun.

The following procedure summarizes the steps that an operator must immediately take when the first signs of a defective spray pattern emerge.

1. Check the external portion of the fluid tip for material buildup. If buildup has occurred, secure the gun trigger safety switch and clean the gun fluid tip with a non-metal soft brush.
2. If the spray pattern exhibits signs of tails at the top or bottom ends of the pattern, increase the air pressure gradually until the tails disappear.
3. If increasing air pressure does not dissipate the tails, the fluid tip may be worn and may need to be replaced. Another sign of the need to replace a worn tip is a gradual decline in spraying pattern width.
4. If cleaning or replacing the fluid tip does not dissipate the tails; the spraying defect is most likely due to the material temperature and/or viscosity.
5. If pattern pulsation or blinking occurs, check the pressure regulators, all downstream regulators, and the pump. These may require further adjustment or even repairs.

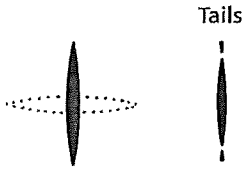


Figure 3

GENERAL TROUBLESHOOTING

(Refer to page 12 when referencing part numbers in brackets.)

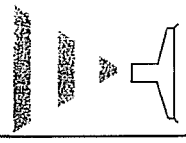
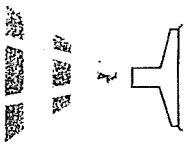
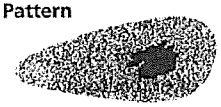
PROBLEM	CAUSE	ACTION
Fluid leaking from through the seal	Worn seal or needle shaft. Loose needle seal.	Replace needle assembly (18). Tighten packing nut gently until leak stops.
Fluid leaking from the front of the gun	Needle ball worn or damaged. Worn seat assembly.	Replace needle assembly (18). Replace fluid seat (3/3A).
Fluid in air passages	Spray tip seal leaking. Leaking around fluid seat.	Tighten air cap/nozzle guard assembly (7) Replace carbide tip assembly (5/5A). Tighten or replace fluid seat (3/3A).
Slow fluid shut off	Fluid buildup on needle assembly.	Clean or replace needle assembly (18).
No fluid output when triggered	Tip orifice plugged. Needle is damaged or broken. Fluid filter or fluid hose plugged.	For flat tip: Turn off fluid supply. Relieve pressure into a closed earth-grounded container. Engage trigger safety. Remove air cap/nozzle guard assembly (6) and the carbide tip (5). Clean or replace carbide tip assembly (5). For twist tip: Rotate twist tip (5A) in aircap (6A) and spray into a closed-grounded container to try clear tip of any debris. If that fails to unplug the tip then remove, clean and replace twist tip. Turn off fluid supply. Relieve pressure into a closed-grounded container. Remove trigger (10). Replace needle assembly (18) Turn off fluid supply. Relieve pressure into a closed-grounded container. Turn off air supply to pump and relieve fluid pressure with bypass valve. Engage trigger safety. Very slowly loosen the hose connection at the gun to relieve any pressure in hose. Remove hose and clear obstruction. NOTE: When replacing filter, use two wrenches—one to hold tube (11) in place and prevent twisting, and the other to remove nut (14). Only tighten nut (14) from 12-15 N-m [9 -11 ft.-lbs.]

IMPORTANT REGULATORY NOTE

The AA4400M Air-Assist H.V.L.P. hand spray gun combines the proven efficiency of the Binks compliant spray guns with air-assist atomization to yield a reliable, carefully engineered compliant spray gun. With 25' of 5/16" I.D. air hose and regulator set at only 1.4 bar [20 psi] the compliant air cap registers 0.7 bar [10 psi] of atomization air to shape and soften the spray pattern. The AA4400M air-assist H.V.L.P. gun operates at high transfer efficiencies and fully complies with all government regulations for H.V.L.P. spray guns.

Max. Fluid Input:	303 bar [4400 psi]
Max. static air pressure at regulator with 25' of hose to inlet:	1.4 bar [20 psi]
Max. Dynamic Gun Inlet Air Pressure:	1 bar [14 psi]
Gun Body:	Forged Aluminum Alloy
Fluid Path:	Stainless Steel and Tungsten Carbide / PEEK

SPRAY PATTERN TROUBLESHOOTING

PROBLEM	CAUSE	ACTION
Fluttering Spray Pattern 	Insufficient fluid supply. Air in paint supply line. Attempting to "feather" (Partially trigger gun).	Adjust fluid regulator or fill fluid supply tanks. Check and tighten pump siphon hose connections, bleed air from paint line. Cannot feather with an AA4400M gun.
Striping Spray – Fingers 	Carbide tip partially plugged.	Clean or replace carbide tip assembly.
Irregular Pattern 	Fluid builds up on carbide tip, or tip partially plugged. On defective side of pattern, air horn holes are plugged.	Clean carbide tip. Clean air horn holes with solvent and a soft brush.
Pattern pushed to one side, same side of air cap gets dirty 	On defective side of pattern, air horn holes are plugged.	Clean air horn holes with solvent and a soft brush or toothpick.

AIR-ASSIST AIRLESS SPRAY GUN MAINTENANCE AND CLEANING

Maintenance of air-assist airless spray guns includes (1) fluid tip wear and replacement; (2) lubrication; and (3) cleaning of the gun.

FLUID TIP

Operating an air-assist airless spray gun with a worn fluid tip will result in increased usage of spraying material and therefore, HAP emissions. For example, an increase in the diameter of a tip from 0.38-0.53 mm [0.015-0.021"] due to wear can result in up to a 100 percent increase in material consumption and cost. To prevent waste in spraying material and non-value-adding costs, a maintenance schedule that includes fluid tip inspection and replacement must be established.

LUBRICATION

Proper lubrication is essential for optimum spray gun performance. Lubrication allows the equipment to operate easily and correctly. The spray gun should be lubricated after each cleaning. The points that need lubrication during the maintenance of air-assist airless spray guns include the fluid needle packing and trigger pivot point. Gun lube is used to lubricate the fluid needle packing and trigger pivot point.

⚠ CAUTION

Never immerse the entire gun in solvent or thinners. Some gun parts will lose their lubricative film and wear more quickly. Additionally, solvents may carry impurities throughout the gun body and allow them to clog small air and fluid passages.

CLEANING

The following steps summarize the procedure for cleaning air-assist airless spray guns:

1. Turn off the atomizing air supply to the gun.
2. Turn off air supply to the pump and relieve fluid pressure. This may be accomplished by opening the bypass/priming valve, if so equipped.
3. Place the siphon (suction) tube into a solvent container. If pump is directly immersed in material, remove the pump and immerse it in a solvent container.

NOTE

Use only compatible solvents that are identified as approved for cleaning and wash-off use.

4. Place the gun trigger safety switch in the locked position.
5. Remove the fluid tip and place it in a closed solvent container.
6. Adjust the pump air supply regulator to its lowest level (counter-clockwise).
7. Place the gun trigger safety switch in the unlocked position.
8. Turn on the air supply to the pump and close the bypass/priming valve, if so equipped.
9. Slowly adjust the pump air supply regulator until the pump begins to cycle.
10. Trigger the gun into a closed container until the fluid runs clear.

⚠ WARNING

Failure to reduce pump air supply pressure or to use a closed container can result in material "bounce-back". Material "bounce back" can cause injury and damage.

NOTE

During cleaning, the gun may only be sprayed into a closed container, never flush the gun into the air or spray booth.

CLEANING *(Continued)*

11. Using a rag dampened with solvent, wipe the exterior surface of the gun. Additionally, some solvents are prohibited from being used for cleaning. The operator must take care to use only approved cleaning solvents for equipment cleaning. These materials are clearly labeled as approved for cleaning and wash off operations. If the operator has any question on selecting appropriate cleaning solvents, the operator should consult a supervisor or plant environmental staff.

REPLACING FLUID NOZZLE AND/OR FLUID NEEDLE ASSEMBLY

REASONS TO REPLACE NOZZLE AND/OR NEEDLE ASSEMBLY:

A) Fluid leak through fluid nozzle.

B) Slow shut off of fluid.

C) No fluid when gun triggered.

⚠ CAUTION

Always ensure that all fluid and air pressure to the gun has been discharged before proceeding with any repairs.

REPLACING THE FLUID NOZZLE

⚠ CAUTION

Do not remove fluid tube when replacing the fluid nozzle.

1. Remove air cap along with spray tip. (See fig 4)
2. While fully depressing the trigger remove the fluid nozzle and gasket. (See fig 5)
3. Check baffle plate for wear. If worn replace with new part. (See fig 6)
4. While fully depressing the trigger install the new fluid nozzle and gasket. Torque fluid nozzle from 12-15 N-m [9-11 ft-lbs]. (See fig 5) .
5. Replace the air cap along with spray tip (See fig 4)

REPLACING THE FLUID NEEDLE ASSEMBLY

1. Remove the trigger by removing the trigger screw and trigger nut. (See fig 7)
2. Completely unscrew needle packing nut. (See fig 8)
3. Unscrew blanking cap and remove the needle spring and pad. (See figs 9 & 10)
4. Ensure the spring pad has not been worn down and clean the spring of any debris. (See fig 11)
5. Remove the needle assembly. (See fig 12)
6. Insert new needle assembly and new spring if necessary. (See figs 12 & 10) Ensure the spring pad is attached to the spring.
7. Screw on blanking cap. (See fig 9)
8. Gently tighten needle packing nut. DO NOT OVER TIGHTEN. (See fig 8)
9. Replace trigger, trigger screw and trigger nut. (See fig 7)
10. Operate gun with fluid and adjust tightness of packing nut as necessary to prevent fluid leak. (See fig 8)

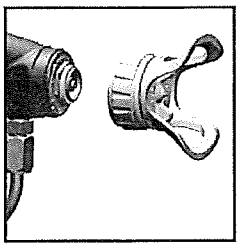


Fig. 4

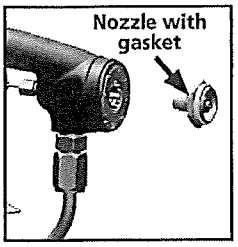


Fig. 5

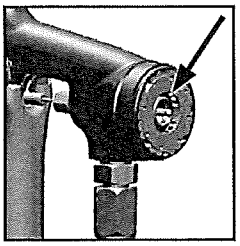


Fig. 6

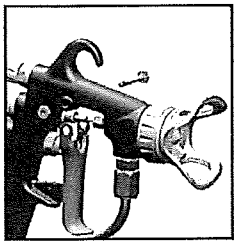


Fig. 7

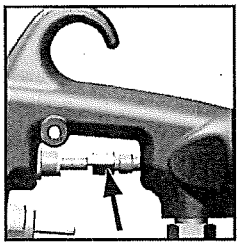


Fig. 8

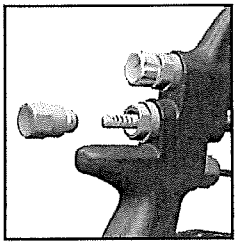


Fig. 9

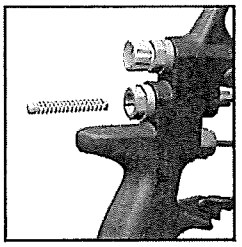


Fig. 10

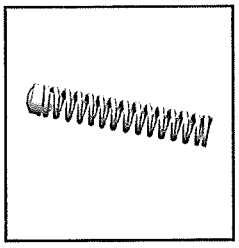


Fig. 11

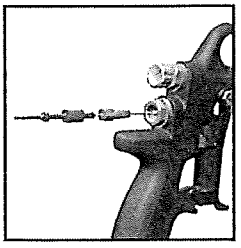


Fig. 12

SERVICING AIR VALVE

REASONS TO SERVICE AIR VALVE:

A) Air valve not functioning correctly (may need cleaning).

B) Routine maintenance.

C) Air leaks (advise replacement, see p8)

⚠ CAUTION

Always ensure that all fluid and air pressure to the gun has been discharged before proceeding with any repairs.

1. Remove trigger and fluid tube assembly. (See fig 13 & 14)
2. Unscrew air valve using 14 mm wrench. (See fig 15)
3. Remove air valve by gripping stem. (See fig 16)
4. Remove spring with spring pad. (See fig 17)
5. DO NOT REMOVE REAR SEAL FROM GUN BODY. (See fig 18)
6. DO NOT REMOVE PLASTIC CAGE FROM AIR VALVE BODY AS THIS MAY DAMAGE THE CAGE. (See fig 19)
7. CLEAN
   a. Remove all paint build up. (See fig 20)
   b. The 4 poppet holes must be clear. (See fig 21)
   c. Stem must be free to float in poppet. (See fig 22)
   d. Stem must slide through cage bore with slight resistance (due to seal).
   e. Rear seal must look clean and in position in the bore. (See fig 18)
   f. If any of the above cannot be rectified, replace the air valve. (See Replacing Air Valve p8)
8. Replace spring ensuring the end with the plastic bearing pad goes in first. (See fig 17)
9. Insert air valve assembly into gun and carefully feed over the spring and through the rear seal. (See fig 23)
10. Tighten air valve assembly using fingers first, and then tighten with 14mm wrench. Torque from 24-30 N-m [18-22 ft-lbs]. (See fig 24)
11. Replace the fluid tube and trigger. (See figs 14 & 13)
12. If there is an air leak through the gun, the air valve may need replacing. (See Replacing Air Valve p8)

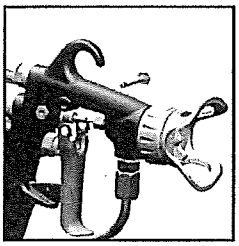


Fig. 13

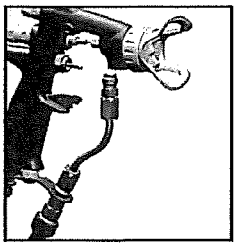


Fig. 14

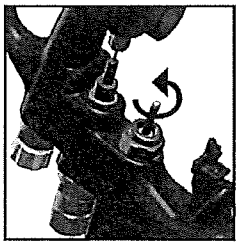


Fig. 15

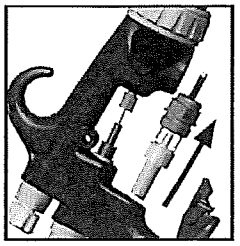


Fig. 16

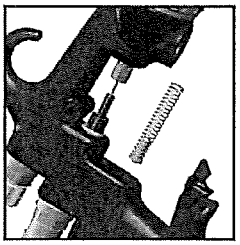


Fig. 17

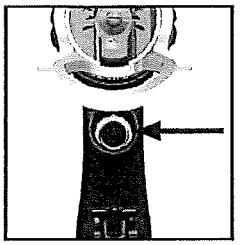


Fig. 18

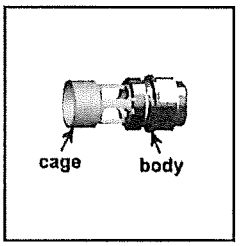


Fig. 19

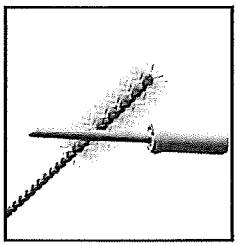


Fig. 20

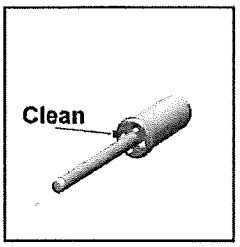


Fig. 21

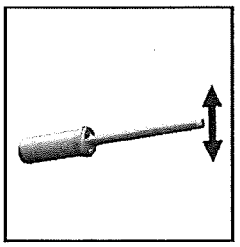


Fig. 22

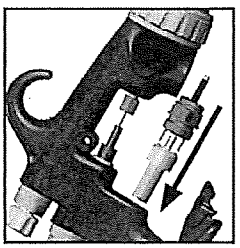


Fig. 23

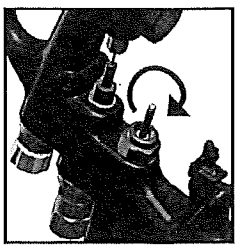


Fig. 24

REPLACING AIR VALVE

REASONS TO REPLACE AIR VALVE:

A) Air leak through the gun.

B) Air valve not operating correctly.

> **⚠ CAUTION**
>
> Always ensure that all fluid and air pressure to the gun has been discharged before proceeding with any repairs.

1. Remove trigger and fluid tube assembly. (See figs 25 & 26)
2. Unscrew air valve using 14 mm wrench. (See fig 27)
3. Remove air valve by gripping the stem. (See fig 28)
4. Remove spring with spring pad. (See fig 29)
5. Hook out rear seal using Service Tool. (See figs 30 & 31)
6. Clean air valve bores in gun body with the brush supplied in the kit.
7. Place new rear seal onto Service tool; grooves must fit in service tool form. (See fig 32)
8. Push rear seal firmly into hole up to shoulder, using Service tool. (See figs 33 & 34)
9. Insert new spring, ensuring the end with the plastic bearing pad goes in first. (See fig 29)
10. Insert air valve assembly into gun and carefully feed over the spring and through the rear seal. (See fig 35)
11. Tighten air valve assembly using fingers first, then tighten with 14 mm wrench. Torque from 24-30 N-m [18 to 22 ft-lbs]. (See fig 36)
12. Replace fluid tube and trigger. (See figs 26 & 25)

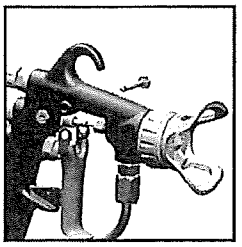


Fig. 25

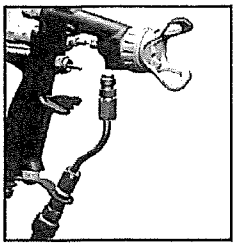


Fig. 26

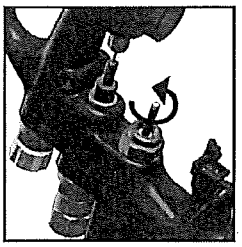


Fig. 27

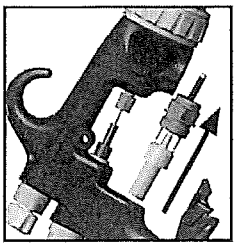


Fig. 28

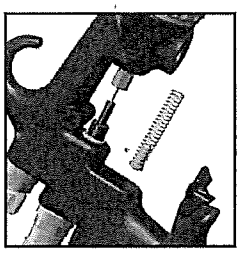


Fig. 29

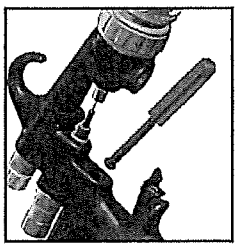


Fig. 30

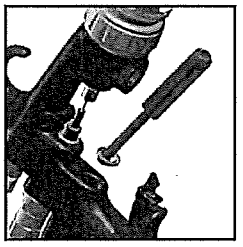


Fig. 31

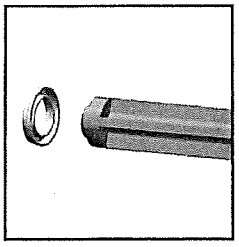


Fig. 32

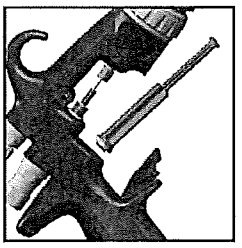


Fig. 33

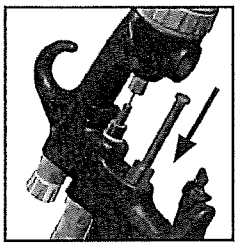


Fig. 34

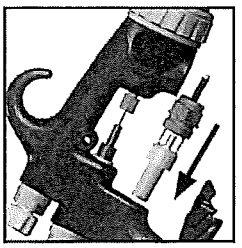


Fig. 35

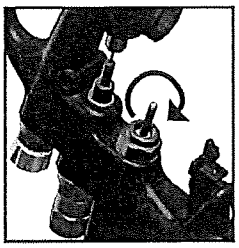


Fig. 36

TIP GUARD INSTALLATION

REASON TO INSTALL TIP GUARD:

To replace broken tip guard.

⚠ WARNING

For pressures over 69 bar [1000 psi] the tip guard must be in place for added protection against skin injection.

⚠ CAUTION

Always ensure that all fluid and air pressure to the gun has been discharged before proceeding with any repairs.

INSTRUCTIONS ARE VALID FOR BOTH FLAT TIP GUARD AND TWIST TIP GUARD:

1. Disconnect all fluid and air hoses from the gun.
2. Insert the gun into a clamping vise with fluid nozzle facing directly upwards. (See fig 37) Gun should be securely clamped at the upper portion of the gun handle.
3. Assemble air cap and air cap ring together – **less spray tip and plastic tip guard.** (See fig 38)
4. Install the air cap and air cap ring assembly onto the gun until it is fully hand tightened. (See fig 39)
5. Slip on the plastic tip guard onto the air cap in proper orientation. (See fig 40)
6. Place round bar screwdriver between open sections of the plastic guard and push down with even pressure on both sides of the plastic guard. (See fig 41)
7. The guard should snap into air cap groove securely. (See fig 42)
8. The aircap can now be removed to install the appropriate tip for use.

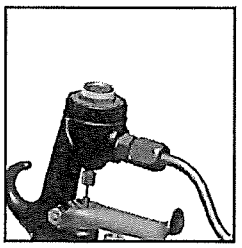


Fig. 37

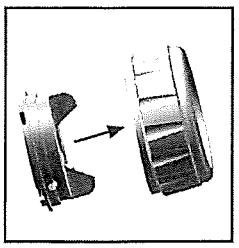


Fig. 38

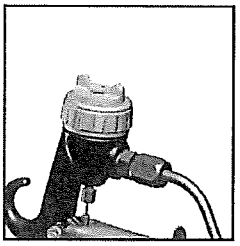


Fig. 39

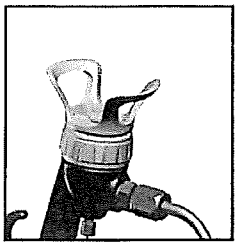


Fig. 40

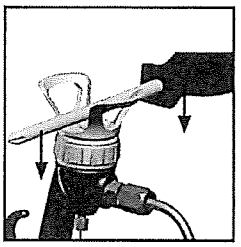


Fig. 41

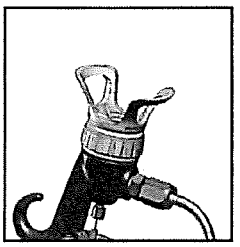
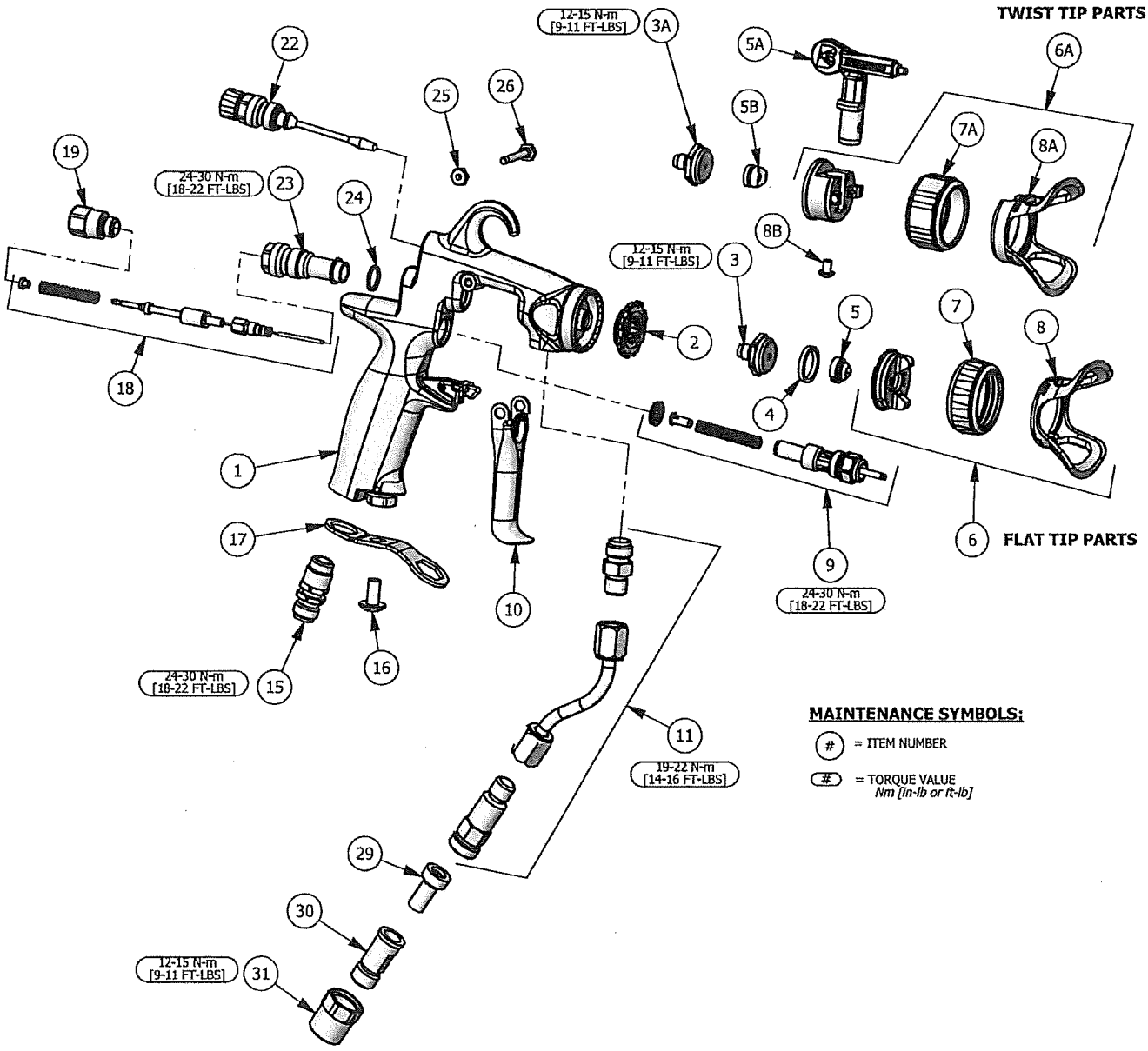


Fig. 42

AA4400M AIR-ASSIST AIRLESS SPRAY GUN



AA4400M AIR-ASSIST AIRLESS SPRAY GUN

PARTS LIST

When ordering, please specify Part No. (Not all Part Nos. are available for purchasing.)
Refer to page 10 when referencing Item Nos.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	—	GUN BODY	1
2	SPA-71-K5	BAFFLE PLATE (KIT OF 5)	1
FLAT TIP COMPONENTS			
3	54-5799-K ✣	FLUID SEAT (4400PSI) (TUNGSTEN CARBIDE)	1
4	SPA-98-K5	GASKET (KIT OF 5)	1
5	114-XXXXX ■	FLAT TIP (FINE FINISH TIPS 9-XXXX-F)	1
6	54-5878-K ▼	FLAT TIP HVLP AIRCAP (FLAT TIP LVMP AIRCAP 54-5797-K) (AA-10 FLAT TIP HVLP AIRCAP 54-5890-K) (FLAT TIP AIRCAP HVLP 54-5795)	1
7	54-5852	RETAINING RING	1
8	54-5794 ○	FLAT TIP GUARD	1
TWIST TIP COMPONENTS			
3A	54-5832-K ✣	TWIST TIP FLUID SEAT (4400PSI) (TUNGSTEN CARBIDE)	1
5A	9-XXX-75 ■	TWIST TIP	1
5B	54-7539-K2	TWIST TIP BRACE (KIT OF 2)	1
6A	54-5924-K ▼	TWIST TIP HVLP AIRCAP (TWIST TIP LVMP AIRCAP 54-5925-K)	1
7	54-5928	RETAINING RING	1
8A	54-5921 ○	TWIST TIP GUARD	1
8B	54-5930 ○	TWIST TIP GUARD SCREW	1

ITEM NO.	PART NO.	DESCRIPTION	QTY.
9	SN-402-K	AIR VALVE ASSEMBLY	1
10	— ▲	TRIGGER	1
11	54-5780	FLUID TUBE ASSEMBLY	1
15	SN-9-K3	AIR INLET FITTING 1/4" NPS (KIT OF 3)	1
16	— ●	FILTER BRACKET SCREW	1
17	— ●	FILTER BRACKET	1
18	54-5826	FLUID NEEDLE ASSEMBLY KIT (4400PSI)	1
19	54-5850	BLANKING NEEDLE NUT	1
22	54-5815	SPREADER VALVE ASSEMBLY	1
23	— #	BODY BUSHING	1
24	— #	BODY BUSHING GASKET	1
25	— ▲	TRIGGER NUT	1
26	— ▲	TRIGGER SCREW	1
29	54-1835	100 MESH DISC FILTER (1 PIECE) (60 MESH FILTER 54-1836)	1
30	— *	DISC FILTER HOUSING	1
31	— *	DISC FILTER RETAINING NUT	1

▼ All aircap kits are pre-assembled with Retaining ring and appropriate tip guard. When switching from flat tip to twist tip, or vice versa, be sure to order correct fluid seat (3/3A). For twist tip, item 5B will also be needed.

■ Refer to page 12 for available tip sizes. When purchasing twist tip, discard packaged brace/seal and use Item 5B only.

✣ Pre-assembled with gasket SPA-98.

▲ Available as part of kit 54-5835.

● Available as part of kit 54-5827.

Available as part of kit 54-5829.

○ Mandatory for operating pressures above 69 bar [1000 psi].

* Available as part of kit 54-4726-K. Order filter (29) separately.

ACCESSORIES

FITTINGS

54-4976-K3	3-Pack 1/4" NPT(f) x 3/8" O.D. Push-In Tube Fitting (optional)
72-2332	Fluid Inlet Swivel (1/4"m x 1/4"f)

FLUID FILTER

54-1835	100 Mesh (Disc) Filter
54-1836	60 Mesh (Disc) Filter

HVLP AIRCAP TEST KITS

54-5882-K	Flat Tip HVLP Aircap Test Kit (Incl Gauge) for 54-5878 air cap
54-5836-K	Flat Tip HVLP Aircap Test Kit (Incl Gauge) for 54-5795 air cap
54-5837-K	Twist Tip HVLP Aircap Test Kit (Incl Gauge)

TEST GAUGES

54-5327	HVLP Test Gauge

TWIST TIP SELECTION CHARTS

Fan width based on 152 bar [2200 psi] with latex paint 305 mm [12"] from surface. Actual results may vary, depending on material viscosity.

PART NUMBER	DESCRIPTION	ORIFICE	FAN WIDTH (IN.)	GPM CAPACITY @ 152 BAR [2200 PSI]
9-307-75	TWIST TIP	.007	6	0.05
9-309-75	TWIST TIP	.009	6	0.09
9-409-75	TWIST TIP	.009	8	0.09
9-509-75	TWIST TIP	.009	10	0.09
9-211-75	TWIST TIP	.011	4	0.12
9-311-75	TWIST TIP	.011	6	0.12
9-411-75	TWIST TIP	.011	8	0.12
9-511-75	TWIST TIP	.011	10	0.12
9-611-75	TWIST TIP	.011	12	0.12
9-213-75	TWIST TIP	.013	4	0.18
9-313-75	TWIST TIP	.013	6	0.18
9-413-75	TWIST TIP	.013	8	0.18
9-513-75	TWIST TIP	.013	10	0.18
9-613-75	TWIST TIP	.013	12	0.18
9-713-75	TWIST TIP	.013	14	0.18
9-215-75	TWIST TIP	.015	4	0.24
9-315-75	TWIST TIP	.015	6	0.24
9-415-75	TWIST TIP	.015	8	0.24
9-515-75	TWIST TIP	.015	10	0.24
9-615-75	TWIST TIP	.015	12	0.24
9-715-75	TWIST TIP	.015	14	0.24
9-217-75	TWIST TIP	.017	4	0.31
9-317-75	TWIST TIP	.017	6	0.31
9-417-75	TWIST TIP	.017	8	0.31
9-517-75	TWIST TIP	.017	10	0.31
9-617-75	TWIST TIP	.017	12	0.31
9-717-75	TWIST TIP	.017	14	0.31
9-419-75	TWIST TIP	.019	8	0.38
9-519-75	TWIST TIP	.019	10	0.38
9-619-75	TWIST TIP	.019	12	0.38
9-421-75	TWIST TIP	.021	8	0.47
9-521-75	TWIST TIP	.021	10	0.47
9-621-75	TWIST TIP	.021	12	0.47
9-523-75	TWIST TIP	.023	10	0.57
9-623-75	TWIST TIP	.023	12	0.57
9-525-75	TWIST TIP	.025	10	0.67
9-625-75	TWIST TIP	.025	12	0.67
9-627-75	TWIST TIP	.027	12	0.74
9-631-75	TWIST TIP	.031	12	1.03
9-435-75	TWIST TIP	.035	8	1.31
9-635-75	TWIST TIP	.035	12	1.31

FINE FINISH FLAT TIP SELECTION CHARTS

Fan width based on 69 bar [1000 PSI] with water 305 mm [12"] from surface. Actual results may vary, depending on material viscosity.

PART NUMBER	DESCRIPTION	ORIFICE	FAN WIDTH (IN.)	GPM CAPACITY @ 34 BAR [500 PSI] WATER
9-0909-F	FINE FINISH TIP	0.009	9	0.039
9-0911-F	FINE FINISH TIP	0.009	11	0.039
9-1109-F	FINE FINISH TIP	0.011	9	0.06
9-1111-F	FINE FINISH TIP	0.011	11	0.06
9-1113-F	FINE FINISH TIP	0.011	13	0.06
9-1115-F	FINE FINISH TIP	0.011	15	0.06
9-1309-F	FINE FINISH TIP	0.013	9	0.09
9-1311-F	FINE FINISH TIP	0.013	11	0.09
9-1313-F	FINE FINISH TIP	0.013	13	0.09
9-1315-F	FINE FINISH TIP	0.013	15	0.09
9-1509-F	FINE FINISH TIP	0.015	9	0.12
9-1511-F	FINE FINISH TIP	0.015	11	0.12
9-1513-F	FINE FINISH TIP	0.015	13	0.12
9-1515-F	FINE FINISH TIP	0.015	15	0.12
9-1517-F	FINE FINISH TIP	0.015	17	0.12
9-1709-F	FINE FINISH TIP	0.017	9	0.16
9-1711-F	FINE FINISH TIP	0.017	11	0.16
9-1713-F	FINE FINISH TIP	0.017	13	0.16
9-1715-F	FINE FINISH TIP	0.017	15	0.16
9-1717-F	FINE FINISH TIP	0.017	17	0.16

STANDARD FLAT TIP SELECTION CHARTS

Fan width based on 69 bar [1000 PSI] with water 305 mm [12"] from surface. Actual results may vary, depending on material viscosity.

PART NUMBER	DESCRIPTION	ORIFICE	FAN WIDTH (IN.)	GPM CAPACITY @ 34 BAR [500 PSI] WATER
114-00704	TIP ASSEMBLY	.007	4	.028
114-00706	TIP ASSEMBLY	.007	6	.028
114-00708	TIP ASSEMBLY	.007	8	.028
114-00902	TIP ASSEMBLY	.009	2	.039
114-00906	TIP ASSEMBLY	.009	6	.039
114-00908	TIP ASSEMBLY	.009	8	.039
114-00910	TIP ASSEMBLY	.009	10	.039
114-00912	TIP ASSEMBLY	.009	12	.039
114-01104	TIP ASSEMBLY	.011	4	.060
114-01106	TIP ASSEMBLY	.011	6	.060
114-01108	TIP ASSEMBLY	.011	8	.060
114-01110	TIP ASSEMBLY	.011	10	.060
114-01112	TIP ASSEMBLY	.011	12	.060
114-01114	TIP ASSEMBLY	.011	14	.060
114-01304	TIP ASSEMBLY	.013	4	.090
114-01306	TIP ASSEMBLY	.013	6	.090
114-01308	TIP ASSEMBLY	.013	8	.090
114-01310	TIP ASSEMBLY	.013	10	.090
114-01312	TIP ASSEMBLY	.013	12	.090
114-01314	TIP ASSEMBLY	.013	14	.090
114-01316	TIP ASSEMBLY	.013	16	.090
114-01506	TIP ASSEMBLY	.015	6	.120
114-01508	TIP ASSEMBLY	.015	8	.120
114-01510	TIP ASSEMBLY	.015	10	.120
114-01512	TIP ASSEMBLY	.015	12	.120
114-01514	TIP ASSEMBLY	.015	14	.120
114-01516	TIP ASSEMBLY	.015	16	.120
114-01518	TIP ASSEMBLY	.015	18	.120
114-01706	TIP ASSEMBLY	.017	6	.160
114-01708	TIP ASSEMBLY	.017	8	.160
114-01710	TIP ASSEMBLY	.017	10	.160
114-01712	TIP ASSEMBLY	.017	12	.160
114-01714	TIP ASSEMBLY	.017	14	.160
114-01716	TIP ASSEMBLY	.017	16	.160
114-01718	TIP ASSEMBLY	.017	18	.160
114-01906	TIP ASSEMBLY	.019	6	.190
114-01908	TIP ASSEMBLY	.019	8	.190
114-01910	TIP ASSEMBLY	.019	10	.190
114-01912	TIP ASSEMBLY	.019	12	.190
114-01914	TIP ASSEMBLY	.019	14	.190
114-01916	TIP ASSEMBLY	.019	16	.190
114-01918	TIP ASSEMBLY	.019	18	.190
114-02110	TIP ASSEMBLY	.021	10	.240
114-02112	TIP ASSEMBLY	.021	12	.240
114-02114	TIP ASSEMBLY	.021	14	.240
114-02116	TIP ASSEMBLY	.021	16	.240
114-02118	TIP ASSEMBLY	.021	18	.240
114-02410	TIP ASSEMBLY	.024	10	.310
114-02412	TIP ASSEMBLY	.024	12	.310
114-02414	TIP ASSEMBLY	.024	14	.310
114-02416	TIP ASSEMBLY	.024	16	.310
114-02418	TIP ASSEMBLY	.024	18	.310
114-02710	TIP ASSEMBLY	.027	10	.385
114-02712	TIP ASSEMBLY	.027	12	.385
114-02714	TIP ASSEMBLY	.027	14	.385
114-02716	TIP ASSEMBLY	.027	16	.385
114-02718	TIP ASSEMBLY	.027	18	.385

TWIST TIP NOTE

When switching from flat tip to twist tip, increase pattern size by 51 mm [2 inches] and use air adjustment to turn down to desired size.

FULL GUN ASSEMBLIES

AA4400M HVLP FLAT TIP GUN ASSEMBLY (NO TIP INCL.)	0909-4400-HF0000
AA4400M HVLP FLAT TIP GUN WITH AA-10 AIRCAP (NO TIP INCL.)	0909-4400-10000
AA4400M LVMP FLAT TIP GUN ASSEMBLY (NO TIP INCL.)	0909-4400-LF000
AA4400M HVLP TWIST TIP GUN ASSEMBLY (NO TIP INCL.)	0909-4400-HT0000

DESCRIPTION	ASS'Y NUMBER
AA4400M LVMP TWIST TIP GUN ASSEMBLY (NO TIP INCL.)	0909-4400-LT0000

Material Safety Data Sheet

Date of issue 14 March 2014
Version 11.01

1 . Product and company identification

Product name : AMERCOAT 12 CLEANER
Code : AT12
Supplier : PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272
Emergency telephone number : (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 (Mexico)
Technical Phone Number : 888-977-4762

2 . Hazards identification

Emergency overview : DANGER!

FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT AND EYE IRRITATION. MAY BE HARMFUL IF INHALED OR SWALLOWED. ASPIRATION HAZARD. CAN ENTER LUNGS AND CAUSE DAMAGE. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Keep away from flames, such as a pilot light, and any object that sparks, such as an electric motor. Keep away from heat. Do not smoke. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Potential acute health effects

Inhalation : May be harmful if inhaled. Irritating to respiratory system. Can irritate eyes, nose, mouth and throat.
Ingestion : May be harmful if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage.
Skin : Moderately irritating to the skin.
Eyes : Irritating to eyes.

Over-exposure signs/symptoms

Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone.

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

This Material Safety Data Sheet has been prepared in accordance with Canada's Workplace Hazardous Materials Information System (WHMIS) and the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
toluene	108-88-3	30 - 60
acetone	67-64-1	30 - 60

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Material Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.

Skin contact : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

Inhalation : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Ingestion : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous combustion products : Decomposition products may include the following materials:
carbon oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Use spark-proof tools and explosion-proof equipment. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Do not swallow. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. Vapors are heavier than air and may spread along floors. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. If this material is part of a multiple component system, read the Material Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Do not store above the following temperature: 120F / 49C.

8 . Exposure controls/personal protection

Name	Result	ACGIH	OSHA	Ontario	Mexico	PPG
toluene	TWA	20 ppm	200 ppm Z	20 ppm	50 ppm S	Not established
	STEL	Not established	500 ppm Z A 300 ppm Z C	Not established	Not established	Not established
acetone	TWA	500 ppm	1000 ppm	500 ppm	1000 ppm	Not established
	STEL	750 ppm	Not established	750 ppm	1260 ppm	Not established

Key to abbreviations

A = Acceptable Maximum Peak
ACGIH = American Conference of Governmental Industrial Hygienists.
C = Ceiling Limit
S = Potential skin absorption
SR = Respiratory sensitization
SS = Skin sensitization

8 . Exposure controls/personal protection

F	= Fume	STEL	= Short term Exposure limit values
IPEL	= Internal Permissible Exposure Limit	TD	= Total dust
OSHA	= Occupational Safety and Health Administration.	TLV	= Threshold Limit Value
R	= Respirable	TWA	= Time Weighted Average
Z	= OSHA 29CFR 1910.1200 Subpart Z - Toxic and Hazardous Substances		

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes : Safety glasses with side shields.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Respiratory : If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: -16.67°C (2°F)

Explosion limits : Lower: 2%

Material supports combustion. : Yes.

Color : Clear.

Odor : Not available.

pH : Not available.

9 . Physical and chemical properties

Boiling/condensation point : >37.78°C (>100°F)
Melting/freezing point : Not available.
Specific gravity : 0.83
Density (lbs / gal) : 6.93
Vapor pressure : 19.5 kPa (146.1 mm Hg) [room temperature]
Vapor density : Not available.
Volatility : 100% (v/v), 100% (w/w)
Evaporation rate : 6.81 (butyl acetate = 1)
Partition coefficient: n-octanol/water : Not available.
% Solid. (w/w) : 0

10 . Stability and reactivity

Stability : Stable under recommended storage and handling conditions (see Section 7).
Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Materials to avoid : Reactive or incompatible with the following materials:,oxidizing materials,strong acids, strong alkalis
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
toluene	LD50 Oral	Rat	636 mg/kg	-
	LD50 Dermal	Rabbit	8.39 g/kg	-
	LC50 Inhalation	Rat	49 g/m3	4 hours
acetone	LD50 Oral	Rat	1.8 g/kg	-
	LD50 Dermal	Rabbit	20 g/kg	-
	LC50 Inhalation Vapor	Rat	76000 mg/m3	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Defatting irritant : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Target organs : Contains material which causes damage to the following organs: brain.
Contains material which may cause damage to the following organs: blood, kidneys, the reproductive system, liver, heart, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	NTP	OSHA
toluene	A4	3	-	-
acetone	A4	-	-	-

11 . Toxicological information

Carcinogen Classification code: ACGIH: A1, A2, A3, A4, A5
IARC: 1, 2A, 2B, 3, 4
NTP: Proven, Possible
OSHA: +
Not listed or regulated as a carcinogen: -

Teratogenicity

Developmental effects : Contains material which may cause developmental abnormalities, based on animal data.

Fertility effects : Contains material which may impair female fertility, based on animal data.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
toluene	Acute LC50 5800 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute EC50 6000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Chronic NOEC 28000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
acetone	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 6900 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 7200000 ug/L Fresh water	Algae - Green algae - Selenastrum sp.	96 hours

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

14. Transport information

	DOT	TDG	Mexico	IMDG
UN number	UN1263	UN1263	UN1263	UN1263
UN proper shipping name	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL
Transport hazard class(es)	3	3	3	3
Packing group	II	II	II	II
Environmental hazards	No.	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Product RQ (lbs)	1924.1	Not applicable.	Not applicable.	Not applicable.
RQ substances	(toluene, acetone)	Not applicable.	Not applicable.	Not applicable.

Additional information

DOT : Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

TDG : None identified.

Mexico : None identified.

IMDG : None identified.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

15 . Regulatory information

United States inventory (TSCA 8b) : All components are listed or exempted.

Australia inventory (AICS) : All components are listed or exempted.

Canada inventory (DSL) : All components are listed or exempted.

China inventory (IECSC) : All components are listed or exempted.

Europe inventory (REACH) : Please contact your supplier for information on the inventory status of this material.

Japan inventory (ENCS) : All components are listed or exempted.

Korea inventory (KECI) : All components are listed or exempted.

New Zealand (NZIoC) : All components are listed or exempted.

Philippines inventory (PICCS) : All components are listed or exempted.

United States

U.S. Federal regulations :

SARA 302/304: No products were found.

CERCLA: Hazardous substances.: acetone: 5000 lbs. (2270 kg); toluene: 1000 lbs. (454 kg);

SARA 311/312 SDS Distribution - Chemical Inventory - Hazard Identification:

Chemical name	CAS #	Acute	Chronic	Fire	Reactive	Pressure
toluene	108-88-3	Y	Y	Y	N	N
acetone	67-64-1	Y	N	Y	N	N
	Product as-supplied :	Y	Y	Y	N	N

SARA 313	Chemical name	CAS number	Concentration

15 . Regulatory information

Supplier notification	: toluene	108-88-3	30 - 60

Additional environmental information is contained on the Environmental Data Sheet for this product, which can be obtained from your PPG representative.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).

Mexico

Classification

Flammability : 3 **Health** : 2 **Reactivity** : 0

16 . Other information

Hazardous Material Information System (U.S.A.)

Health : 2 * **Flammability** : 3 **Physical hazards** : 0
(*) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Health : 2 **Flammability** : 3 **Instability** : 0

Date of previous issue : **1/12/2014.**

Organization that prepared the MSDS : EHS

▽ Indicates information that has changed from previously issued version.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.

TRIANGLE INDUSTRIAL
CAL24
PWB145D Red Primer

® TRADE MARK OF CALTRANS

Caltrans Specification Red Oxide Waterbase Latex Primer

Specifications

DESCRIPTION:

CAL24 is a very high performance corrosion inhibiting, water reducible latex primer formulated for iron, steel and galvanized metal. **CAL24** uses zinc phosphate in combination with chemical flash rust inhibitors to protect against rusting and undercutting. It provides excellent adhesion and corrosion resistance on properly prepared surfaces where a waterbase topcoat will be applied. **CAL24** is intended for field application to white blasted steel or iron, but it can be just as easily used as a shop and maintenance primer. It features very easy application and no lead, chromate or petroleum solvent chemical hazards.

CAL24 is part of a two part Caltrans priming system. **CAL24** is the final primer coat and is applied over the contrast primer coat **CAL25**.

In common with all latex products, **CAL24** requires thorough surface preparation and exhibits temperature sensitive drying.

USE:

CAL24 is recommended for iron, steel or galvanized in non chemical, non submersion service. Uses include exterior structural steel, steel bridges, power line towers, microwave towers, metal buildings, gutters, downspouts and metal roofs. It is also used for shop application to structural steel and large, air dry fabrications subject to severe climatic exposure such as structures for telephone and/or electronic switching or relay equipment.

ADVANTAGES:

- Premium corrosion protection.
- Excellent adhesion.
- Very low VOC.
- Lead and chromate free.
- Safe, simple latex application. – water cleanup.

LIMITATIONS:

- Not recommended for chemical environments or surfaces subject to water submersion.
- Not intended for product finishing when a near automotive finish is required or when top coats with aggressive solvents are used.
- Not recommended for application in temperatures below 50° F.

Properties

VOC: [as packaged] ..... 30 g/l - (0.25 lbs./gal.)

APPEARANCE: [Gloss at 60°]

Matte ..... 50 – 55

WEIGHT PER GALLON: ..... 11.6 lbs.

FLASH POINT: [setaflash] ..... >240° F.

PACKAGE VISCOSITY: ..... 82 – 95 KU

SOLIDS:

By Weight ..... 57 ± 2 %

By Volume ..... 46 ± 2 %

COVERAGE:

Theoretical at 1 mil DFT ..... 734 sq.ft./gal.

Theoretical at 4 mils DFT ..... 185 sq.ft./gal.

Recommended Minimum DFT ..... 4 mils

DRY SCHEDULE: [at 50% RH and 2 mils DFT]

	50° F.	*65° F.*	*80° F.*	*90° F.*
Dry to Touch	3 hrs	1½ hrs	45 mins	20 mins
Rainproof	24 hrs	16 hrs	8 hrs	6 hrs
Recoat	36 hrs	16 hrs	8 hrs	6 hrs

COLOR AVAILABILITY:

CAL24 is stocked in red iron oxide color only. Caltrans jobs require pre-inspected wet paint samples before application. Expect three week delivery after order – one week to make; two weeks to inspect.

ORDER NUMBER AND COLOR:

CAL24 ..... Red

PACKAGING:

Four ea. 1 gallon cans per case [truck] ..... 53 lbs.

One ea. 5 gallon plastic pail ..... 63 lbs.

Shipping & Handling

SHIPPING DESCRIPTION: [CFR 49]

Domestic Ground/Air/Vessel: ..... Not regulated

IMDG PACKAGING & STOWAGE: ..... Not regulated

UNIFORM FIRE CODE: [CFR 29] ..... CLASS III-B

STORAGE TEMPERATURE: ..... 120° F. max.

Do Not Allow To Freeze ..... 35° F. min.

SHELF LIFE: [warranted] ..... 1 Year

"HMIS" RATINGS: ..... **H** - 1; **F** - 1; **R** - 0; **PP** - H

TRIANGLE COATINGS, INC.
Sales: 510-895-8000
www.tricoat.com

TRIANGLE®

CAL24, PWB145D Red Primer

Caltrans Specification Red Oxide Waterbase Latex Primer

Application Data

***FOR CALTRANS JOBS:**

If this product is used on a Caltrans job, the Caltrans specification takes presidents over the below information. For Caltrans work always refer to the Caltrans job specification before applying this product.

REQUIREMENTS FOR APPLICATION:

- Both surface and ambient temperatures must be above 50° F.
- Surfaces to be primed must be dry, +5° F. above dewpoint and protected from all moisture until rainproof as per chart above.
- Surfaces must be clean, 100% free of contaminants through which water cannot penetrate including accumulated dirt/dust, mud, oils, grease and any form of silicone.
- All rust must be removed. New steel must meet SSPC-SP1, repaints must meet SSPC-SP2. Abrasive blasting should go to SSPC-SP7.
- All loose, peeling and/or marginally adherent paint must be removed.

FILM DEVELOPMENT & THICKNESS:

CAL24 is applied in two coats to produce a finished dry film of 4 mils.

THINNING:

CAL24 is designed for use at package viscosity. Thinning is not recommended for any purpose.

APPLICATION:..... STIR BEFORE USE

CAL24 This coating is intended for spray application. Limited application may be made by brushing or rolling. This system is not designed for airless spray application. Be sure to use a contrast color for second prime coat.

Weather Conditions: This coating is to be applied only on thoroughly dry surfaces and during periods of favorable weather (as outlined in section 59-1.02 of the Caltrans Specification book).

Note: A minimum of 12 hours drying time must be allowed between each application. Brush any smaller or irregularly shaped surface and to work paint into difficult areas like bolt heads or deep inside corners. Mitts are highly recommended for smaller diameter pipes, rails and angle or channel iron. Conventional and HVLP spray are appropriate anywhere overspray is not a problem.

Brush: Professional quality nylon or nylon polyester blend sized to the job.

Conventional: .045 – .055 fluid nozzle; air cap sized to available air and type gun at 55 – 65 psi.

HVLP: .040– 0.55 fluid nozzles; paint pressure, 10 to 15 psi; air cap pressure, 10 psi.

RECOMMENDED TOPCOATS:

Water reducible latex CAL03 (PWB86)

CLEANUP:..... Water

Cured **CAL24** can be cut with AT17 Wash Thinner.

Health & Safety

CAUTION:

LIQUID CONTACT WITH EYE AND SKIN CAUSES IRRITATION. DO NOT INGEST. Contains petrolum distilates. Avoid contact with eyes and skin. Wash hands thoroughly after using and before eating and smoking. If spillage has occurred, absorb and dispose of according to local regulations.

FIRST AID:

Should eye contact occur, flush with plenty of water for at least 15 minutes and get medical attention if vision is disturbed. For skin wash thoroughly with soap and water. If swallowed get medical attention immediately. DO NOT induce vomiting.

THIS PRODUCT IS FOR PROFESSIONAL USE ONLY.

KEEP THIS PRODUCT OUT OF THE REACH OF CHILDREN.

TRIANGLE COATINGS, INC. 1930 Fairway Drive, San Leandro, CA 94577-5631 ▼ Tel: 510-895-8000 ▼ *Fax: 510-895-8800* ▼ www.tricoat.com

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : PWB-145E RED PRIMER PAINT
IDENTIFICATION NUMBER: CAL24 DATE PRINTED: 11/22/17
PRODUCT USE/CLASS :

SUPPLIER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

MANUFACTURER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

PREPARER: CMK, PHONE: , PREPARE DATE: 11/22/17

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % LESS THAN

No Hazardous Materials are Contained in this Product

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: Harmful if swallowed. Causes eye irritation.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: May cause irritation including pain, tearing or reddening accompanied by stinging sensation.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: May cause skin irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - INGESTION: This material may be harmful or fatal if swallowed.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: None.

PRIMARY ROUTE(S) OF ENTRY: Unknown

(Continued on Page 2)

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for 15 minutes. Get medical attention, if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Do not reuse until cleaned.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

FIRST AID - INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: N.A.

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE:

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Product will not burn but may spatter if temperature exceeds boiling point.

SPECIAL FIREFIGHTING PROCEDURES: Containers can build up pressure if exposed to heat (fire). As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area. Absorb spill with suitable absorbent material, then place in a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. If large spill, dike area and call spill response team. Notify appropriate state and local agencies.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

STORAGE: Keep from freezing. Keep container closed when not in use.

(Continued on Page 3)

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good general ventilation should be sufficient to control airborne levels.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits listed in Section 2 by using engineering controls. If not feasible, use a NIOSH approved respirator.

SKIN PROTECTION: General use of chemical resistant gloves are recommended to protect the skin from drying and irritation. Lotions and barrier creams are also recommended to prevent drying of the skin.

EYE PROTECTION: Eye protection is recommended.

OTHER PROTECTIVE EQUIPMENT: If repeated or prolonged skin contact or contamination is likely, protective clothing should be worn.

HYGIENIC PRACTICES: Establish good personal hygiene and work practices. Always wash hands before eating, drinking, or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: N.A.	VAPOR DENSITY	: Is lighter than air
ODOR	:	ODOR THRESHOLD	:
APPEARANCE	:	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	:		
FREEZE POINT	:	SPECIFIC GRAVITY	: 1.3987
VAPOR PRESSURE	:	pH @ 0.0 %	:
PHYSICAL STATE	:	VISCOSITY	:

VOLATILE BY VOLUME: 54.2%
COEFFICIENT OF WATER/OIL DISTRIBUTION:

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: No Information.

INCOMPATIBILITY: Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Can include carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

(Continued on Page 4)

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

TOXICOLOGICAL INFORMATION: This information shown in Section 3 is based on the toxicity profiles for a number of products that are compositionally similar to this product.

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Refer to local, county, state and federal storm water and air quality regulations.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with local, county, state, and federal regulations. Incineration is preferred.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Non-hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

---------- CHEMICAL NAME ---------- CAS NUMBER WT/WT % IS LESS THAN
No SARA Section 313 components exist in this product.

U.S. STATE REGULATIONS: AS FOLLOWS -

CALIFORNIA PROPOSITION 65:
WARNING: This product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

(Continued on Page 5)

SECTION 15 - REGULATORY INFORMATION

CANADIAN WHMIS CLASS: No information available.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 12/07/16

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.25 lbs/gal, 30 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

ANTENNA
283PAJ60

Part A 283PAJ60 Light Green
Part B 283B Activator

TRIANGLE INDUSTRIAL

Aquapoxy™ Primer

Water Based, Epoxy Primer

SPECIFICATIONS

DESCRIPTION:

Aquapoxy™ Primer provides excellent adhesion to previously painted surfaces, concrete, and various ferrous and nonferrous substrates where conventional primers may cause adhesion failures. This primer exhibits good flow and leveling characteristics. It is a two-part, water reducible, VOC compliant, epoxy.

Aquapoxy™ Primer is a high performance primer for:

- zinc
- galvanizing
- inorganic zinc rich
- copper
- brass
- aluminum
- fiberglass

USE:

Aquapoxy™ Primer uses include:

- exterior structures, ferrous and nonferrous
- bridges
- power line towers
- microwave towers
- metal buildings
- structural steel components
- large fabricated structures

COLOR AVAILABILITY:

Aquapoxy™ Primer 283PAJ60 is available in light green.

ORDER CODE: [Mix Ratio: *1 Part A :1 Part B*, by volume]

Part A [light green] 283PAJ60
Part B [activator] 283B

Individual products are identified by the product series number, followed by an identifier and color number.

PACKAGING:

Part A:	Part B:
1 gallon cans	1 gallon cans
5 gallon pails	5 gallon pails
55 gallon drums	55 gallon drums

ADVANTAGES:

- Long term corrosion protection
- Excellent adhesion to properly prepared iron and steel substrates
- Very low VOC
- Contains no lead or chromate
- Low toxicity
- Water cleanup

LIMITATIONS:

- Not for use in submersion applications
- Must be topcoated and protected from UV exposure
- Not recommended for application below 50° F or above 100° F or within 5° F of the dew point
- Maximum RH at worksite: 75%

PROPERTIES

DRY SCHEDULE: [at 50% RH and 2.0 mil DFT]

	60° F	*77° F*	*90° F*
Dry to Touch	90 mins	60 mins	45 mins
Recoat	8 hrs	4 hrs	2 hrs
Dry to Handle	72 hrs	24 hrs	12 hrs
Full Cure	7 days	7 days	7 days
Critical Recoat Window: After four days mechanically abrade all surfaces and power wash.			

VOC: [mixed, as supplied] ..... 83 g/l (0.7 lbs/gal)
VOC: [mixed, excluding exempt materials] ..... 83 g/l (0.7 lbs/gal)
FLASH POINT: [setaflash] ..... > 220° F
WEIGHT PER GALLON: [mixed] ..... 10.1 lbs
PACKAGE VISCOSITY: [as applied]
3 Zahn Seconds 35
SOLIDS: [average]
% By Weight ..... 43.7 ± 2%
% By Volume ..... 34.1 ± 2%
COVERAGE: [average]
Theoretical at 2.0 mil DFT ..... 274 sq ft/gal
REQUIRED FILM THICKNESS:
ASTM D1005 Minimum Dried Film ..... 2-3 mil (48-72µ)
ASTM D4414 Minimum Wet Film ..... 6-9 mil (144-216µ)
ASTM D523 GLOSS:
@ 60° 15-20
@ 20° ..... N/A
ASTM D3363 PENCIL HARDNESS:
H ..... Pass
ASTM D5402 MEK RUBS:
40 Double ..... Pass
ASTM D2794 IMPACT RESISTANCE:
60 inlb forward, 60 inlb reverse ..... Pass
ASTM B117 SALT SPRAY RESISTANCE:
5% Salt Spray, 300 hours ..... Pass
ASTM D5894UV CORROSION WEATHERING:
ASTM D610 Rusting 7 cycles, 300 hours ..... N/A
ASTM D714 Blistering 7 cycles, 300 hours ..... N/A
ASTM D4587/D523/D4214 QUV-UVA
500 hours @ 60° ..... N/A
1000 hours @ 60° ..... N/A
ASTM D2247/D714 HUMIDITY RESISTANCE:
600 hours [unscribed] ..... Pass
ASTM D4585 MOISTURE CONDENSATION:
100° F, 400 hours ..... Pass
ASTM D3359 ADHESION:
5B ..... Pass
ASTM D4060 ABRASION RESISTANCE:
CS17 wheel, 140 cycles, 1 kg load ..... Pass
ASTM D522 FLEXIBILITY:
180° bend, 1/8" mandrel ..... Pass
ASTM D3170 CHIP RESISTANCE:
Rating ..... N/A
ASTM D2485 DRY HEAT RESISTANCE:
275° F ..... Pass
WET HEAT RESISTANCE:
200° F Non-immersion ..... Pass
ASTM D2243 WATER-BORNE FREEZE THAW:
3 cycles ..... Pass

TRIANGLE COATINGS, INC.
Sales: 925-583-0800
www.tricoat.com

TRIANGLE

Part A	283PAJ60	Light Green
Part B	283B	Activator

Aquapoxy™ Primer

Water Based, Epoxy Primer

APPLICATION DATA

SURFACE PREPARATION:

All surfaces must be clean, dry, and free of contaminants. All dirt, grease, rust, mill scale, or loose chalky paint must be removed.

The retrieval and analysis of soluble salts on substrates shall be conducted in accordance with "SSPC: The Society for Protective Coatings," rule. The substrate must be cleaned so that the maximum level of soluble salts does not exceed 5 micrograms per square centimeter. Areas should be tested at the rate of 3 tests for the first 1000 square feet prepared per day, and one test for each additional 1000 square feet or portion thereof, at randomly selected locations.

When less than 1000 square feet of surface area is prepared in a shift, at least 2 tests should be performed. If levels of soluble salts exceed the maximum, the entire area represented by the test should be cleaned again and tested until soluble salt levels conform to this requirement.

Unpainted new structural steel: Blast clean near white with appropriate abrasive media. Limit blast profile to 0.5 - 1.0 mil maximum. All surfaces must be clean, dry, and free of contaminants. Apply appropriate primer to the recommended dry film thickness.

- SSPC-SP1S
- SSPC-SP10

Previously painted structural steel: Steam clean or power wash to remove all dirt, grease, contaminants, and gloss from existing paint. Spot clean rusty areas to remove all rust and mill scale.

- SSPC-SP1
- SSPC-SP2
- SSPC-SP3
- SSPC-SP6
- SSPC-SP11

Galvanized steel: Steam clean or power wash to remove all dirt, grease, and contaminants. Spot clean to remove rust and mill scale. Roughen surface by whip blasting or light sanding. Do not remove intact galvanizing. Epoxy or urethane primer is required.

- SSPC-SP1
- SSPC-SP2
- SSPC-SP3
- SSPC-SP7
- SSPC-SP11

Concrete: Clean in accordance with:

- SSPC-SP13 / NACE6

Note: Blast cleaned surfaces must be primed the same day blast cleaning is done.

MIXING PARAMETERS:

Ratio: ..... [Part A : Part B]
By Weight ..... 1.00 : 0.75
By Volume ..... 1.00 : 1.00
Sweat-in Time: ..... 20 mins
ASTM D2196 Pot Life: [valid for qtys of 1 gallon or more]

50° F	65° F	77° F	85° F
4 hrs	4 hrs	4 hrs	3 hrs

APPLICATION:

Aquapoxy™ Primer can be applied by HVLP, air assist airless, brush or roller.

HVLP:
Fluid Tip and Needle: ..... .050"
Fluid Pressure: ..... 8-10 psi
Air Cap Pressure: ..... 60 psi

Air Assist Airless:
Fluid Tip: ..... .015"
Fluid Pressure: ..... 800-900 psi
Air Cap Pressure ..... 10-15 psi

Brush or Roller: ..... yes

THINNING: ..... Water

CLEANUP: ..... Water

Clean tools with detergent and water while Aquapoxy™ is still wet.

HEALTH & SAFETY PRECAUTIONS

WARNING:

LIQUID CONTACT WITH EYE AND SKIN CAUSES IRRITATION. DO NOT INGEST. Avoid contact with eyes and skin. Wash hands thoroughly after using and before eating and smoking. Keep container closed when not in use. If spillage occurs, absorb and dispose of according to local regulations.

FIRST AID:

Should eye contact occur, flush with plenty of water for at least 15 minutes and get medical attention if vision is disturbed. For skin, wash thoroughly with soap and water. If swallowed, seek medical attention immediately. DO NOT induce vomiting.

THIS PRODUCT IS FOR PROFESSIONAL USE ONLY.

KEEP THIS PRODUCT OUT OF THE REACH OF CHILDREN.

SHIPPING & HANDLING

SHIPPING DESCRIPTION: [CFR 49]
Ground, Air, Vessel ..... Not Regulated
Required Label & Marking ..... Not Required
IMDG PACKAGING: ..... Not Required
IMDG STOWAGE: ..... Not Regulated
UNIFORM FIRE CODE: [CFR 29] ..... CLASS III-B
STORAGE TEMPERATURE: ..... 120° F max
SHELF LIFE: [warranted] ..... 1 YEAR
HMIS RATINGS: .....H - 1; F - 1; R - 0; PP - B

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MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Activator 283 Series
IDENTIFICATION NUMBER: 283B DATE PRINTED: 09/20/17
PRODUCT USE/CLASS :

SUPPLIER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

MANUFACTURER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

PREPARER: Cmk, PHONE: , PREPARE DATE: 09/20/17

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % LESS THAN

No Hazardous Materials are Contained in this Product

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: Harmful if swallowed. Causes eye irritation.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: May cause irritation including pain, tearing or reddening accompanied by stinging sensation.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: May cause skin irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - INGESTION: This material may be harmful or fatal if swallowed.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: None.

PRIMARY ROUTE(S) OF ENTRY: Unknown

(Continued on Page 2)

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for 15 minutes. Get medical attention, if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Do not reuse until cleaned.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

FIRST AID - INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: 150 F

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE:

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Product will not burn but may spatter if temperature exceeds boiling point.

SPECIAL FIREFIGHTING PROCEDURES: Containers can build up pressure if exposed to heat (fire). As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area. Absorb spill with suitable absorbent material, then place in a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. If large spill, dike area and call spill response team. Notify appropriate state and local agencies.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

STORAGE: Keep from freezing. Keep container closed when not in use.

(Continued on Page 3)

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good general ventilation should be sufficient to control airborne levels.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits listed in Section 2 by using engineering controls. If not feasible, use a NIOSH approved respirator.

SKIN PROTECTION: General use of chemical resistant gloves are recommended to protect the skin from drying and irritation. Lotions and barrier creams are also recommended to prevent drying of the skin.

EYE PROTECTION: Eye protection is recommended.

OTHER PROTECTIVE EQUIPMENT: If repeated or prolonged skin contact or contamination is likely, protective clothing should be worn.

HYGIENIC PRACTICES: Establish good personal hygiene and work practices. Always wash hands before eating, drinking, or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: N.A.	VAPOR DENSITY	: Is lighter than air
ODOR	:	ODOR THRESHOLD	:
APPEARANCE	:	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	:		
FREEZE POINT	:	SPECIFIC GRAVITY	: 1.0647
VAPOR PRESSURE	:	pH @ 0.0 %	:
PHYSICAL STATE	:	VISCOSITY	:

VOLATILE BY VOLUME: 62.6%
COEFFICIENT OF WATER/OIL DISTRIBUTION:

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: No Information.

INCOMPATIBILITY: Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Can include carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

(Continued on Page 4)

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

TOXICOLOGICAL INFORMATION: This information shown in Section 3 is based on the toxicity profiles for a number of products that are compositionally similar to this product.

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Refer to local, county, state and federal storm water and air quality regulations.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with local, county, state, and federal regulations. Incineration is preferred.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Non-hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	WT/WT % IS LESS THAN
Aromatic Hydrocarbon Mixture	64742-94-5	1.0 %
ETHYL ALCOHOL	64-17-5	0.1 %
Naphthalene	91203	0.1 %
1,2,4-Trimethylbenzene	95636	0.1 %

U.S. STATE REGULATIONS: AS FOLLOWS -

(Continued on Page 5)

SECTION 15 - REGULATORY INFORMATION

CALIFORNIA PROPOSITION 65:
WARNING: This product contains a chemical (s) known to the state of California to cause cancer.

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 2 FLAMMABILITY: 0 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 09/20/17

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.22 lbs/gal, 27 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

Epoxy Acrylic DTM™

Water Based, Low VOC

Part A	44G700	White
Part B	44B	Activator

Application Data

SURFACE PREPARATION:

Abrasive blast cleaned surfaces shall be tested by the Contractor for soluble salts using a Class A or B retrieval method as described in Technology Guide 15, "Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates," of the "SSPC: The Society of Protective Coatings," and cleaned so the maximum level of soluble salts does not exceed the 10 micrograms per square centimeter.

Areas of abrasive blast cleaned steel shall be tested at the rate of 3 tests for the first 1,000 square feet prepared per day, and one test for each additional 1,000 square feet or portion thereof, at locations selected by the Engineer. When less than 1,000 square feet of surface area is prepared in a shift, at least 2 tests shall be performed. Additionally, the use of a iron phosphate will further enhance corrosion protection.

APPLICABLE SUBSTRATES:

- Direct to Ferrous or Nonferrous
- Direct to Galvanized
- Properly prepared concrete

RECOMMENDED PRIMERS:

920Z KoldGalv - 400 g/l VOC, light marine applications
283P609 Aquapoxy - 83 g/l VOC, ferrous and nonferrous substrates.
Consult your Triangle Coatings representative for other primer recommendations.

MIXING PARAMETERS:

Ratio: ..... [Part A : Part B]
By Weight ..... 9 : 1
By Volume ..... 8 : 1
Sweat-in Time: ..... 30 mins
ASTM D2196 Pot Life: [valid for qtys of 1 gallon or more]

50°F	65° F	75°F	85° F
2 days	2 days	1 day	1 day

APPLICATION:

HVLP:
Fluid Tip and Needle: ..... .045"
Fluid Pressure: ..... 8-10 psi
Air Cap Pressure: ..... 60 psi
Air Assist Airless:
Fluid Tip: ..... .017 - .018"
Fluid Pressure: ..... 800-900 psi
Air Cap Pressure ..... 10-15 psi
Airless:
Fluid Tip: ..... .018 - .021"
Fluid Pressure ..... 1,800-2,000 psi
Brush or Roller: ..... yes

THINNING: ..... Water

CLEANUP: ..... Water

Health & Safety

WARNING:

Combustible liquid and vapor. Harmful vapor if inhaled. Vapor may affect the brain or nervous system causing dizziness, headache, or nausea and can cause nose and throat irritation. Keep away from sparks, heat, or open flames. Use with adequate ventilation. Avoid breathing of vapor. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after using and before eating and smoking. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after appliation unless air monitoring demonstrates vapor levels are below applicable limits. Follow respirator manufacturer's directions for use. Keep container closed when not in use. If spillage occurs, absorb and dispose of according to local regulations.

NOTICE:

Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Reports have associated repeated and prolonges occupational overexposure to solvents with permanent brain and nervous system damage.

FIRST AID:

Should eye contact occur, flush with plenty of water for at least 15 minutes and get medical attention if vision is disturbed. For skin, wash thoroughly with soap and water. If swallowed, seek medical attention immediately. DO NOT induce vomiting.

THIS PRODUCT IS FOR PROFESSIONAL USE ONLY.

KEEP THIS PRODUCT OUT OF THE REACH OF CHILDREN.

Shipping & Handling

SHIPPING DESCRIPTION: [CFR 49]
Ground, Air, Vessel ..... Non Regulated Material
Required Label & Marking ..... Not Required
IMDG PACKAGING: ..... Not Regulated
IMDG STOWAGE: ..... Not Regulated
UNIFORM FIRE CODE: [CFR 29] ..... CLASS III-B
STORAGE TEMPERATURE: ..... 120° F max
SHELF LIFE: [warranted] ..... 1 YEAR
HMIS RATINGS: .....H - 2; F - 0; R - 0; PP - B

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MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Activator 44 Series
IDENTIFICATION NUMBER: 44B
PRODUCT USE/CLASS :

DATE PRINTED: 09/20/17

SUPPLIER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

MANUFACTURER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

PREPARER: Cmk, PHONE: , PREPARE DATE: 09/20/17

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % LESS THAN

No Hazardous Materials are Contained in this Product

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: Harmful if swallowed. Causes eye irritation.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: May cause irritation including pain, tearing or reddening accompanied by stinging sensation.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: May cause skin irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - INGESTION: This material may be harmful or fatal if swallowed.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: None.

PRIMARY ROUTE(S) OF ENTRY: Unknown

(Continued on Page 2)

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for 15 minutes. Get medical attention, if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Do not reuse until cleaned.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

FIRST AID - INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: 486 F
(PENSKY-MARTENS C.C.)

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE:

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Product will not burn but may spatter if temperature exceeds boiling point.

SPECIAL FIREFIGHTING PROCEDURES: Containers can build up pressure if exposed to heat (fire). As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area. Absorb spill with suitable absorbent material, then place in a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. If large spill, dike area and call spill response team. Notify appropriate state and local agencies.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

STORAGE: Keep from freezing. Keep container closed when not in use.

(Continued on Page 3)

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good general ventilation should be sufficient to control airborne levels.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits listed in Section 2 by using engineering controls. If not feasible, use a NIOSH approved respirator.

SKIN PROTECTION: General use of chemical resistant gloves are recommended to protect the skin from drying and irritation. Lotions and barrier creams are also recommended to prevent drying of the skin.

EYE PROTECTION: Eye protection is recommended.

OTHER PROTECTIVE EQUIPMENT: If repeated or prolonged skin contact or contamination is likely, protective clothing should be worn.

HYGIENIC PRACTICES: Establish good personal hygiene and work practices. Always wash hands before eating, drinking, or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: N.A.	VAPOR DENSITY	: Is lighter than air
ODOR	:	ODOR THRESHOLD	:
APPEARANCE	:	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	:		
FREEZE POINT	:	SPECIFIC GRAVITY	: 1.0927
VAPOR PRESSURE	:	pH @ 0.0 %	:
PHYSICAL STATE	:	VISCOSITY	:

VOLATILE BY VOLUME: 49.1%
COEFFICIENT OF WATER/OIL DISTRIBUTION:

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: No Information.

INCOMPATIBILITY: Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Can include carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

(Continued on Page 4)

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

TOXICOLOGICAL INFORMATION: This information shown in Section 3 is based on the toxicity profiles for a number of products that are compositionally similar to this product.

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Refer to local, county, state and federal storm water and air quality regulations.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with local, county, state, and federal regulations. Incineration is preferred.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Non-hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

---------- CHEMICAL NAME ---------- CAS NUMBER WT/WT % IS LESS THAN
No SARA Section 313 components exist in this product.

U.S. STATE REGULATIONS: AS FOLLOWS -

CALIFORNIA PROPOSITION 65:
None Known.

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

(Continued on Page 5)

SECTION 15 - REGULATORY INFORMATION

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 1

PREVIOUS MSDS REVISION DATE: 10/09/15

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.00 lbs/gal, 0 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

TRIANGLE INDUSTRIAL

Epoxy Acrylic DTM

Water Based, Low VOC Finish

44 SERIES

Part A	44G700	White
Part B	44B	Activator

Specifications

DESCRIPTION:

Epoxy Acrylic DTM is two-component water based epoxy acrylic primer/finish designed for direct-to-metal applications over properly prepared surfaces. It dries to a tough finish that exhibits excellent durability and performance. **Epoxy Acrylic DTM** is a high build rust-inhibitive coating.

USE:

Epoxy Acrylic DTM is used to protect exterior and interior structural ferrous and nonferrous steel, institutional walls, and industrial machinery. **Epoxy Acrylic DTM**, used in conjunction with high build zinc rich primers, is suitable for moderate duty marine applications. **Epoxy Acrylic DTM**, applied as one part of a three-coat system, is suitable for bridge coating applications.

COLOR AVAILABILITY:

Factory colors available; refer to Triangle Industrial Products color card. Custom colors available; minimum order is required. Special costing will be applied.

ORDER CODE: ..... 44 + gloss + color #

Individual products are identified by the product series number, followed by a gloss identifier and color number.
Ex: 44G700 is Epoxy Acrylic DTM, Gloss, White
Ex: 44G382 is Epoxy Acrylic DTM, Gloss, Safety Yellow
G=Gloss
S=Semi-Gloss

PACKAGING:

Part A:	Part B:
1 gallon cans	1 pint
5 gallon pails (4 gal full)	1 gallon (1/2 full)
	2 quarts
55 gallon drums	

ADVANTAGES:

- Low Odor
- High film build in one coat
- Meets most VOC regulations
- Corrosion resistant
- Contains no heavy metals
- Ideal for new construction or maintenance applications
- Clean-up with water

LIMITATIONS:

- Not intended for immersion applications
- Not for below grade applications
- Shelf life: one year

Properties

DRY SCHEDULE: [at 50% RH and 3.0 mils DFT]

	45° F	*60° F*	*85° F*
Dry to Touch	2 hrs	90 mins	60 mins
Recoat	2 hrs	60 mins	40 mins
Dry to Handle	6 hrs	4 hrs	3 hrs
Full Cure	14 days	10 days	7 days
Critical Recoat Window: After two weeks power wash or mechanically abrade all surfaces.			

VOC: [mixed] ..... 157 g/l (1.3 lbs/gal)
FLASH POINT: [setaflash] ..... > 240° F
WEIGHT PER GALLON: [mixed] ..... 10.0 lbs
PACKAGE VISCOSITY: [as applied]
4 Zahn Seconds ..... 40 - 50
SOLIDS: [average, mixed]
% By Weight 51.0
% By Volume 38.0
COVERAGE: [average]
Theoretical at 3.0 mils DFT ..... 203 sq ft/gal
REQUIRED FILM THICKNESS:
ASTM D1005 Minimum Dried Film ..... 3-4 mils (76-102µ)
ASTM D4414 Minimum Wet Film .... 8-11 mils (203-280µ)
[2 wet coats are required to obtain the correct DFT]
ASTM D523 GLOSS:
@ 60° 55-80
@ 20° ..... N/A
ASTM D3363 PENCIL HARDNESS:
2H ..... Pass
ASTM D5402 MEK RUBS:
50 Double ..... Pass
ASTM D2794 IMPACT RESISTANCE:
60 inlb forward, 60 inlb reverse ..... Pass
ASTM B117 SALT SPRAY RESISTANCE:
5% Salt Spray, 250 hours ..... Pass
ASTM D5894UV CORROSION WEATHERING:
ASTM D610 Rusting 7 cycles, 200 hours ..... Pass
ASTM D714 Blistering 7 cycles, 300 hours ..... Pass
ASTM D4587/D523/D4214 QUV-UVA
500 hours @ 60° ..... 10% loss
1000 hours @ 60° ..... 20% loss
ASTM D2247/D714 HUMIDITY RESISTANCE:
200 hours ..... Pass
ASTM D4585 MOISTURE CONDENSATION:
100° F, 400 hours ..... Pass
ASTM D3359 ADHESION:
N/A ..... N/A
ASTM D4060 ABRASION RESISTANCE:
CS17 wheel, 140 cycles, 1 kg load ..... Pass
ASTM D522 FLEXIBILITY:
180° bend, 1/8" mandrel ..... Pass
ASTM D3170 CHIP RESISTANCE:
Rating ..... N/A
ASTM D2485 DRY HEAT RESISTANCE:
N/A ..... N/A
ASTM D2243 WATER-BORNE FREEZE THAW:
3 cycles ..... Pass

TRIANGLE COATINGS, INC.
Sales: 510-895-8000
www.tricoat.com

TRIANGLE

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Epoxy-Acrylic DTM Gloss White
IDENTIFICATION NUMBER: 44G700 DATE PRINTED: 09/20/17
PRODUCT USE/CLASS :

SUPPLIER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

MANUFACTURER:
Triangle Coatings, Inc.

4763 Bennett Drive
Livermore, CA 94551
800-895-8000 (8:00am-5:00pm)

CHEMTREC 24HR EMERGENCY TELEPHONE
800-424-9300

PREPARER: Cmk, PHONE: , PREPARE DATE: 09/20/17

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % LESS THAN
01	1-methyl-2-pyrrolidone	872-50-4	5.0 %

EXPOSURE LIMITS

ITEM	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-CEILING	COMPANY TLV-TWA	SKIN
01	N.E.	N.E.	N.E.	N.E.	N.E.	NO

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: Harmful if swallowed. Causes eye irritation.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: May cause irritation including pain, tearing or reddening accompanied by stinging sensation.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: May cause skin irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - INGESTION: This material may be harmful or fatal if swallowed.

(Continued on Page 2)

SECTION 3 - HAZARDS IDENTIFICATION

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: None.

PRIMARY ROUTE(S) OF ENTRY: SKIN CONTACT INHALATION INGESTION EYE CONTACT

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for 15 minutes. Get medical attention, if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Do not reuse until cleaned.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

FIRST AID - INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: 201 F

LOWER EXPLOSIVE LIMIT: 1.3 %
UPPER EXPLOSIVE LIMIT: 9.5 %

AUTOIGNITION TEMPERATURE:

EXTINGUISHING MEDIA: CO2 DRY CHEMICAL FOAM

UNUSUAL FIRE AND EXPLOSION HAZARDS: Product will not burn but may spatter if temperature exceeds boiling point.

SPECIAL FIREFIGHTING PROCEDURES: Containers can build up pressure if exposed to heat (fire). As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area. Absorb spill with suitable absorbent material, then place in a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. If large spill, dike area and call spill response team. Notify appropriate state and local agencies.

(Continued on Page 3)

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

STORAGE: Keep from freezing. Keep container closed when not in use.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good general ventilation should be sufficient to control airborne levels.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits listed in Section 2 by using engineering controls. If not feasible, use a NIOSH approved respirator.

SKIN PROTECTION: General use of chemical resistant gloves are recommended to protect the skin from drying and irritation. Lotions and barrier creams are also recommended to prevent drying of the skin.

EYE PROTECTION: Eye protection is recommended.

OTHER PROTECTIVE EQUIPMENT: If repeated or prolonged skin contact or contamination is likely, protective clothing should be worn.

HYGIENIC PRACTICES: Establish good personal hygiene and work practices. Always wash hands before eating, drinking, or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: 399 - 400 F	VAPOR DENSITY	: Is heavier than air
ODOR	:	ODOR THRESHOLD	:
APPEARANCE	:	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	:		
FREEZE POINT	:	SPECIFIC GRAVITY	: 1.2749
VAPOR PRESSURE	:	pH @ 0.0 %	:
PHYSICAL STATE	:	VISCOSITY	:

VOLATILE BY VOLUME: 61.8%
COEFFICIENT OF WATER/OIL DISTRIBUTION:

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: No Information.

INCOMPATIBILITY: Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Can include carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

(Continued on Page 4)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: This product is stable under normal storage conditions.

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

TOXICOLOGICAL INFORMATION: This information shown in Section 3 is based on the toxicity profiles for a number of products that are compositionally similar to this product.

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Refer to local, county, state and federal storm water and air quality regulations.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with local, county, state, and federal regulations. Incineration is preferred.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

CERCLA - SARA HAZARD CATEGORY:
This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD CHRONIC HEALTH HAZARD FIRE HAZARD

(Continued on Page 5)

SECTION 15 - REGULATORY INFORMATION

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	WT/WT % IS LESS THAN
1-methyl-2-pyrrolidone	872-50-4	5.0 %
Anhydrous Ammonia	1336-21-6	0.1 %

U.S. STATE REGULATIONS: AS FOLLOWS -

CALIFORNIA PROPOSITION 65:
None Known.

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 01/26/15

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.82 lbs/gal, 98 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

Corrections needed
Red line. See III-35 #5

Revised 3-22-17

MOJAVE DESERT
AIR QUALITY MANAGEMENT DISTRICT

Federal Operating Permit Number: 13300611

For: National Aeronautics & Space Administration

Facility: NASA GOLDSTONE DEEP SPACE COMMUNICATIONS COMPLEX

Issued Pursuant to MDAQMD Regulation XII
Effective Date:

•SEE TITLE V PAGE 2 FOR PERMIT REVISION SUMMARY•

This Federal Operating Permit Expires
April 4, 2021

Issued By: Brad Poiriez
Executive Director
Air Pollution Control Officer

14306 Park Avenue, Victorville, California 92392
Phone (760) 245-1661
FAX (760) 245-2022

[District Rule 1302(C)(2)(a)]

2. This diesel ICE and its associated equipment cannot be operated at the same engine-print (spot) for more than 365 consecutive days. This equipment must be moved within this facility or moved to another facility annually. The amount of time that the equipment is kept in the storage location does not count towards the residence requirement so long as the equipment is not set up in an operational configuration.
[Title 17 CCR 93116.2(a)(29)]
District and State Applicability Only

3. This unit shall only be fired on ultra-low sulfur diesel fuel whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements; or alternative diesel fuel, or CARB diesel fuel utilizing fuel additives, that has been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.
[Title 17 CCR 93116.3(a)]
District and State Applicability Only

4. A non-resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time by January 1, 2012.
[Title 17 CCR 93116.4(c)(2)(A)]
District and State Applicability Only

~~5. This engine has been designated as "low-use" pursuant to Title 17 CCR 93116. Engine operation shall not exceed 80 hours per year, except for in an emergency event as defined in Title 17 CCR 93116.~~
[Title 17 CCR 93116.2(a)(22) and 9.3116.3(c)(4)]
District and State Applicability Only

6. The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:
   (a) Date of each use and duration of each use (in hours);
   (b) Reason for use (emergency use, testing & maintenance, etc.);
   (c) Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,
   (d) Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log).
   [Title 17 CCR 93116.4(c)(2)(C)]
   District and State Applicability Only

7. The fleet* (engines <175 bhp) under control of this owner/operator is subject to and shall comply with the weighted Diesel Particulate Matter (DPM) emission fleet averages** expressed as grams per brake horsepower-hour (g/bhp-hr) of Title 17 CCR Section 93116.3(c) & (d) by the following dates:

353 PM

Year of Manufacturer 2009, USEPA Family Name BPSIB5.702ED, stack height 2', stack diameter 2", exhaust flow rate of 735 cubic feet per minute at 677 degrees Fahrenheit. One General Motors, Propane fired internal combustion engine Model No. 8.1 and Serial No. 21400S09, producing 162 bhp with 8 cylinders at 1800 rpm while consuming a maximum of 7 gal/hr. This equipment powers a Kohler Generator Model No. 100 REZG and Serial No. 2270879, rated at 100 kW(e).

B011623: PROPANE IC ENGINE, PORTABLE GENERATOR consisting of: Year of Manufacture 2010, USEPA Family Name BPSIB5.702ED, stack height 2', stack diameter 2", exhaust flow rate of 735 cubic feet per minute at 677 degrees Fahrenheit. One General Motors, Propane fired internal combustion engine Model No. 8.1 and Serial No. 23472, producing 162 bhp with 8 cylinders at 1800 rpm while consuming a maximum of 7 gal/hr. This equipment powers a Kohler Generator Model No. 100 REZG and Serial No. 2335656, rated at 100 kW(e).

B012692: DIESEL IC ENGINE, PORTABLE, WELDER consisting of: Year of Manufacture 2015, Tier 4, USEPA Family Name FDZXL02.9020, stack height ~~6.3~~' and a stack diameter of ~~1.75"~~. One Deutz, Diesel fired internal combustion engine Model No. TD2.9L4 and Serial No. 11842669, Direct Injected, Turbo Charged, Electronic Control Module, producing 72 bhp with 3 cylinders at 2200 rpm while consuming a maximum of 4 gal/hr. This equipment powers a Miller Welder Model No. 907062-07-01 and Serial No. LC432006, rated at 600 ampere.

B012693

~~B012692~~: DIESEL IC ENGINE, PORTABLE, WELDER consisting of: Year of Manufacture 2015, Tier 4, USEPA Family Name FDZXL02.9020, stack height 6.3' and a stack diameter of 1.75". One Deutz, Diesel fired internal combustion engine Model No. TD2.9L4 and Serial No. ~~11842669,~~ Direct Injected, 11848053 Turbo Charged, Electronic Control Module, producing 72 bhp with 3 cylinders at 2200 rpm while consuming a maximum of 4 gal/hr. This equipment powers a Miller Welder Model No. 907062-07-01 and Serial No. LF244855, rated at 600 ampere.

B012695: PROPANE IC ENGINE, PORTABLE GENERATOR consisting of: Year of Manufacture 2016, USEPA Family Name GPSIB8.80NGP-012, stack height 6', stack diameter 0.25". One Power Solution International, Inc., Propane fired internal combustion engine Model No. PSI-8.8L and Serial No. SGM32HG87, producing 185 bhp with 8 cylinders at 1800 rpm while consuming a maximum of 0.02 lbs/hr. This equipment powers a Kohler Generator Model No. 125REZGT and Serial No. GM99497-GA1, rated at 185 kW(e).

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
(760) 245-1661 Facsimile: (760) 245-2022

www.mdaqmd.ca.gov
Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

PLEASE TYPE OR PRINT

REMIT $269.00 WITH THIS DOCUMENT ($149.00 FOR CHANGE OF OWNER)

Section 1: Facility/Owner Information

a. Permit To Be Issued To (Company Name): NASA/JPL		b. Federal Tax ID #: 34-0276860
c. Mailing/Billing Address (for above company name) 93 Goldstone Road, Ft. Irwin, CA 92310		
d. Facility or Business License Name (for equipment location): Goldstone Deep Space Communications		
e. Facility Address - Location of Equipment (if same as for company, enter "Same"): Same		Facility UTM or Lat/Long: 116.48206 35.18026
f. Contact Name/Title: Mark Solheid	Email Address: mark.j.solheid@jpl.nasa.gov	Phone/Fax #.: 760 255 8225
g. General Nature of Business: Deep Space Exploration		

Type of Organization (check one):

☐ Individual Owner ☐ Partnership ☐ Corporation ☐ Utility ☐ Local Agency

☐ State Agency ☒ Federal Agency

Section 2: Nature of Application

Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Deutz diesel ICE for operating a Miller Welder

Application is for:	For modification or change of owner:
☒ New Construction ☐ Modification ☐ Change of Owner	_____ Current Permit Number

Do you claim Confidentiality of Data? ☐ No ☐ Yes: Attach explanation; specify which information provided is confidential

Section 3: Engine Information

Engine Function: ☒ Prime ☐ Emergency ☐ Low-Use (<80 hr/yr) ☐ Portable ☐ Stand-by (as defined in Rule 301(E)(10))

Engine Manufacturer: Deutz	Engine Model: TD2.9L4	Engine Serial Number: 11848053
Year of Manufacture: 11/2015	Date Installed:	
Rating (BHP): 72	Speed (RPM):2200	Number of Cylinders: 3

Fuel Type: ☒ CARB Diesel ☐ Natural Gas ☐ Propane/LPG ☐ Gasoline ☐ Digester Gas ☐ Landfill Gas

☐ Other (specify):_____

Alternate Fuel (if applicable) specify:

Engine Meter: ☒ Hour Meter ☐ Dedicated Fuel Meter ☐ None

Cycle Type: ☐ Two Cycle ☒ Four Cycle | Combustion Type: ☐ Rich Burn ☒ Lean Burn

Check all that apply: ☐ Naturally Aspirated ☒ Turbocharged ☐ Aftercooled ☐ Intercooled ☐ Injection Timing Retarded

☐ Air to Fuel Ratio Controller ☐ Smoke Puff Limiter ☒ Electronic Control Module ☐ Staged Combustion

☒ Direct Fuel Injection ☐ Pre-Combustion Chamber ☐ Piston Scavenging

Add-on Emission Control Technology: ☐ No ☐ Yes: Attach Manufacturer's specifications, CARB Certification or Source Test Data

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 -- 800.635.4617 -- FAX 760.245.2022

AUTHORITY TO CONSTRUCT

B012693

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: SEPTEMBER 2018

OWNER OR OPERATOR (Co.#133)
NASA/Goldstone
93 Goldstone Rd.
Fort Irwin, CA 92310

EQUIPMENT LOCATION (Fac.#611)
NASA/Goldstone Deep Space Communications Complex
Goldstone Lake
Fort Irwin, CA 92311

Description:
DIESEL IC ENGINE, PORTABLE, WELDER consisting of: Year of Manufacture 2015, Tier 4, USEPA Family Name FDZXL02.9020, stack height 6.3' and a stack diameter of 1.75".

One Deutz, Diesel fired internal combustion engine Model No. TD2.9L4 and Serial No. 11842~~669,~~ 8053 Direct Injected, Turbo Charged, Electronic Control Module, producing 72 bhp with 3 cylinders at 2200 rpm while consuming a maximum of 4 gal/hr. This equipment powers a Miller Welder Model No. 907062-07-01 and Serial No. LF244855, rated at 600 ampere.

EMISSIONS RATES

Emission Type	Est. Max Load	Unit
CO	0.022	gm/bhp-hr
NOx	2.76	gm/bhp-hr
PM10	0.015	gm/bhp-hr
PM2.5	0.015	gm/bhp-hr
SOx	0.005	gm/bhp-hr
VOC	0.007	gm/bhp-hr

CONDITIONS:

1. This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles in a manner consistent with good air pollution control practice for minimizing emissions. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit.

Fee Schedule: 1 (b) | Rating: 72 bhp | SIC: 9661 | SCC: 20200102 | Location/Coordinates: +35.34155, -116.87422

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

NASA/Goldstone
93 Goldstone Rd.
Fort Irwin, CA 92310

By: Brad Poiriez
Air Pollution Control Officer

Permit: B012693 Issue Date: 09/21/2017

Appendix B
HARP/Emissions Inventory/Prioritization Score Data

HARP Facility Prioritization Report

HARP EIM Version: 2.1.1

Reporting Year: 2017
Project Path: C:\Users\sherih\Desktop
Project Database: C:\Users\sherih\Desktop\GoldstoneDSCC.mdb
CEIDARS Utility Database: C:\HARP2\Tables\CEIDARSTables022016.mdb
HARP Health Talbe: HEALTH201708
Sorting Order: DIS, AB, CO, TS, FACID
Date Created: 12/5/2017 4:54:42 PM
Operator:
****

POLLUTANT HEALTH VALUES FROM HARP HEALTH DATABASE:

POLLUTANT ID	POLLUTANT	CANCERURF(INH) (ug/m^3)^-1	ACUTEREL ug/m^3	CHRONICREL(INH) ug/m^3
79005	1,1,2TriClEthan	1.60E-05	N/A	N/A
79005	1,1,2TriClEthan	1.60E-05	N/A	N/A
75343	1,1-DiClEthane	1.60E-06	N/A	N/A
75343	1,1-DiClEthane	1.60E-06	N/A	N/A
78875	1,2-DiClPropane	N/A	N/A	N/A
78875	1,2-DiClPropane	N/A	N/A	N/A
106990	1,3-Butadiene	1.70E-04	6.60E+02	2.00E+00
106990	1,3-Butadiene	1.70E-04	6.60E+02	2.00E+00
106990	1,3-Butadiene	1.70E-04	6.60E+02	2.00E+00
542756	1,3-DiClPropene	N/A	N/A	N/A
542756	1,3-DiClPropene	N/A	N/A	N/A
540841	2,2,4TriMePentn	N/A	N/A	N/A
540841	2,2,4TriMePentn	N/A	N/A	N/A
56495	3-MeCholanthren	6.30E-03	N/A	N/A
57976	7,12-DB[a]anthr	7.10E-02	N/A	N/A
75070	Acetaldehyde	2.70E-06	4.70E+02	1.40E+02
75070	Acetaldehyde	2.70E-06	4.70E+02	1.40E+02
75070	Acetaldehyde	2.70E-06	4.70E+02	1.40E+02
107028	Acrolein	N/A	2.50E+00	3.50E-01
107028	Acrolein	N/A	2.50E+00	3.50E-01
107028	Acrolein	N/A	2.50E+00	3.50E-01
120127	Anthracene	N/A	N/A	N/A
7440382	Arsenic	3.30E-03	2.00E-01	1.50E-02
7440382	Arsenic	3.30E-03	2.00E-01	1.50E-02
7440393	Barium	N/A	N/A	N/A
71432	Benzene	2.90E-05	2.70E+01	3.00E+00
71432	Benzene	2.90E-05	2.70E+01	3.00E+00
71432	Benzene	2.90E-05	2.70E+01	3.00E+00
7440417	Beryllium	2.40E-03	N/A	7.00E-03
92524	Biphenyl	N/A	N/A	N/A
7440439	Cadmium	4.20E-03	N/A	2.00E-02
7440439	Cadmium	4.20E-03	N/A	2.00E-02
56235	CCl4	4.20E-05	1.90E+03	4.00E+01
56235	CCl4	4.20E-05	1.90E+03	4.00E+01
108907	Chlorobenzn	N/A	N/A	1.00E+03
108907	Chlorobenzn	N/A	N/A	1.00E+03
67663	Chloroform	5.30E-06	1.50E+02	3.00E+02

67663	Chloroform	5.30E-06	1.50E+02	3.00E+02
7440473	Chromium	N/A	N/A	N/A
7440473	Chromium	N/A	N/A	N/A
42101	CO	N/A	N/A	N/A
42101	CO	N/A	N/A	N/A
42101	CO	N/A	N/A	N/A
42101	CO	N/A	N/A	N/A
124389	CO2	N/A	N/A	N/A
7440484	Cobalt	N/A	N/A	N/A
7440508	Copper	N/A	1.00E+02	N/A
18540299	Cr(VI)	1.50E-01	N/A	2.00E-01
18540299	Cr(VI)	1.50E-01	N/A	2.00E-01
110827	Cyclohexane	N/A	N/A	N/A
25321226	DiClBenzenes	N/A	N/A	N/A
9901	DieselExhPM	3.00E-04	N/A	5.00E+00
106934	EDB	7.10E-05	N/A	8.00E-01
100414	Ethyl Benzene	2.50E-06	N/A	2.00E+03
100414	Ethyl Benzene	2.50E-06	N/A	2.00E+03
100414	Ethyl Benzene	2.50E-06	N/A	2.00E+03
75003	Ethyl Chloride	N/A	N/A	3.00E+04
75003	Ethyl Chloride	N/A	N/A	3.00E+04
50000	Formaldehyde	6.00E-06	5.50E+01	9.00E+00
50000	Formaldehyde	6.00E-06	5.50E+01	9.00E+00
50000	Formaldehyde	6.00E-06	5.50E+01	9.00E+00
7647010	HCl	N/A	2.10E+03	9.00E+00
110543	Hexane	N/A	N/A	7.00E+03
110543	Hexane	N/A	N/A	7.00E+03
7439921	Lead	1.20E-05	N/A	N/A
7439965	Manganese	N/A	N/A	9.00E-02
7439965	Manganese	N/A	N/A	9.00E-02
1634044	Me t-ButylEther	2.60E-07	N/A	8.00E+03
7439976	Mercury	N/A	6.00E-01	3.00E-02
7439976	Mercury	N/A	6.00E-01	3.00E-02
67561	Methanol	N/A	2.80E+04	4.00E+03
75092	Methylene Chlor	1.00E-06	1.40E+04	4.00E+02
91203	Naphthalene	3.40E-05	N/A	9.00E+00
91203	Naphthalene	3.40E-05	N/A	9.00E+00
91203	Naphthalene	3.40E-05	N/A	9.00E+00
91203	Naphthalene	3.40E-05	N/A	9.00E+00
7440020	Nickel	2.60E-04	2.00E-01	1.40E-02
7440020	Nickel	2.60E-04	2.00E-01	1.40E-02
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
42603	NOX	N/A	N/A	N/A
1150	PAHs-w/	N/A	N/A	N/A
1150	PAHs-w/	N/A	N/A	N/A
1150	PAHs-w/	N/A	N/A	N/A
127184	Perc	6.10E-06	2.00E+04	3.50E+01
127184	Perc	6.10E-06	2.00E+04	3.50E+01
198550	Perylene	N/A	N/A	N/A
198550	Perylene	N/A	N/A	N/A
85018	Phenanthrene	N/A	N/A	N/A
85018	Phenanthrene	N/A	N/A	N/A
11101	PM	N/A	N/A	N/A
11101	PM	N/A	N/A	N/A
85101	PM10	N/A	N/A	N/A
85101	PM10	N/A	N/A	N/A

88101	PM25	N/A	N/A	N/A
115071	Propylene	N/A	N/A	3.00E+03
115071	Propylene	N/A	N/A	3.00E+03
115071	Propylene	N/A	N/A	3.00E+03
129000	Pyrene	N/A	N/A	N/A
16113	ROG	N/A	N/A	N/A
7782492	Selenium	N/A	N/A	2.00E+01
7782492	Selenium	N/A	N/A	2.00E+01
42401	SOX	N/A	N/A	N/A
42401	SOX	N/A	N/A	N/A
42401	SOX	N/A	N/A	N/A
100425	Styrene	N/A	2.10E+04	9.00E+02
100425	Styrene	N/A	2.10E+04	9.00E+02
79345	TetraClEthane	5.80E-05	N/A	N/A
79345	TetraClEthane	5.80E-05	N/A	N/A
43101	TOG	N/A	N/A	N/A
43101	TOG	N/A	N/A	N/A
43101	TOG	N/A	N/A	N/A
43101	TOG	N/A	N/A	N/A
108883	Toluene	N/A	3.70E+04	3.00E+02
108883	Toluene	N/A	3.70E+04	3.00E+02
7440622	Vanadium	N/A	3.00E+01	N/A
43104	VOC	N/A	N/A	N/A
43104	VOC	N/A	N/A	N/A
43104	VOC	N/A	N/A	N/A
1330207	Xylenes	N/A	2.20E+04	7.00E+02
7440666	Zinc	N/A	N/A	N/A

****

PRIORITIZATION SCORE SUMMARY:

Facility Name
Proximity Method
Optional Factors

FACID	CO	AB	DIS	Emission and Potency Procedure Cancer	Acute	Chronic	NonCancer	Dispersion Adjustment Procedure Cancer	Acute	Chronic	NonCancer	Highest Score
GOLDSTONE DEEP SPACE COMMUNICATIONS CENTER												
Proximity Method:												
Annual Operating Hours 8760												
Priority Multiplier 0.128												
13300611	36	MD	MOJ	3.78	1.38E-02	1.04E-02	2.26E-02	3.77	1.38E-02	1.04E-02	2.26E-02	3.78

File name: C:\Users\sherih\Desktop\Goldstone PS 11-21-17.rtf

HARP Facility Prioritization Report

HARP EIM Version: 2.1.1

Reporting Year: 2017
Project Path: C:\Users\sherih\Desktop
Project Database: C:\Users\sherih\Desktop\GoldstoneDSCC.mdb
CEIDARS Utility Database: C:\HARP2\Tables\CEIDARSTables022016.mdb
HARP Health Talbe: HEALTH201708
Sorting Order: DIS, AB, CO, TS, FACID
Date Created: 11/21/2017 10:25:26 AM
Operator:

****

POLLUTANT HEALTH VALUES FROM HARP HEALTH DATABASE:

POLLUTANT ID	POLLUTANT	CANCERURF(INH) (ug/m^3)^-1	ACUTEREL ug/m^3	CHRONICREL(INH) ug/m^3
108883	Toluene	N/A	3.70E+04	3.00E+02

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PRIORITIZATION SCORE SUMMARY:

Facility Name
Proximity Method
Optional Factors

FACID	CO	AB	DIS	Emission and Potency Procedure Cancer	Acute	Chronic	NonCancer	Dispersion Adjustment Procedure Cancer	Acute	Chronic	NonCancer	Highest Score
GOLDSTONE DEEP SPACE COMMUNICATIONS CENTER												
Proximity Method: Proximity manually edited by user as 4000												
Annual Operating Hours 8760												
Priority Multiplier 0.128												
13300611	36	MD	MOJ	0.00E+00	0.00E+00	4.55E-07	4.55E-07	0.00E+00	0.00E+00	4.55E-07	4.55E-07	4.55E-07

Appendix C
Public Notice

Noticing Methods include the following, per District Rule 1207 (A)(1)(a) and District Rule 1302(D)(2)and(3):

- Published in newspapers of general circulation - *Riverside Press Enterprise* (Riverside County) and the *Daily Press* (San Bernardino County) on Monday, December 11, 2017.
- Mailed and/or emailed to MDAQMD contact list of persons requesting notice of actions (see the contact list following the Public Notice in this Appendix) on Wednesday, December 6, 2017
- Posted on the MDAQMD Website at the following link: http://www.mdaqmd.ca.gov/permitting/public-notices-advisories/public-notices-permitting-regulated-industry

NOTICE OF PRELIMINARY DETERMINATION

NOTICE IS HEREBY GIVEN THAT *National Aeronautics & Space Administration – NASA Goldstone Deep Space Communications Complex (Goldstone)*, located at Goldstone Lake in Fort Irwin, CA 92311 has submitted an application to modify their Federal Operating Permit (13300611) pursuant to the provisions of the Mojave Desert Air Quality Management District (MDAQMD) Regulation XII to include for three new HVLP Spray Guns and one new Air Assist & Airless Finishing Spray System. *Goldstone* is a deep space communications facility, and due to the critical nature of the missions and the remoteness of the facility, uninterrupted electric power is critical. To maintain this reliable electric power, *Goldstone* is equipped with ten, mission-related, diesel-fired emergency generators. Other emitting equipment at *Goldstone* includes diesel-fired, emergency fire pumps; administrative diesel-fired, emergency engines; portable emergency generators (propane and diesel-fired); and gasoline dispensing equipment. This proposed action will not result in a net increase in regulated air pollutants.

REQUEST FOR COMMENTS: Interested persons are invited to submit written comments and/or other documents regarding the terms and conditions of the proposed modification of *Goldstone's* Federal Operating Permit. Once you submit written comments, you may also request a public hearing on the proposed action. To be considered, comments, documents and requests for a public hearing must be submitted no later than 5:00 P.M. on January 10, 2018, to the MDAQMD, at the address listed below.

PETITION FOR REVIEW: Federal Operating Permits are also subject to review and approval by USEPA. If USEPA has not objected to a proposed permit, and the MDAQMD has not addressed a public comment in a satisfactory manner, the public may petition USEPA, Region IX, Operation Permits Section at 75 Hawthorne Street, San Francisco, CA 94105 within 60 days after the end of the USEPA review period for USEPA to reconsider its decision not to object to the permit.

AVAILABILITY OF DOCUMENTS: The proposed Federal Operating Permit, as well as the application and other supporting documentation are available for review at the MDAQMD offices, 14306 Park Avenue, Victorville, CA 92392. In addition, these documents are available on the MDAQMD website and can be viewed at following link:
http://www.mdaqmd.ca.gov/permitting/public-notices-advisories/public-notices-permitting-regulated-industry
Please contact Sheri Haggard, Air Quality Engineer at the address above, or (760) 245-1661, extension 1864, or at shaggard@mdaqmd.ca.gov with additional questions pertaining to this action and/or corresponding documents.

Traducción en español esta disponible por solicitud. Por favor llame: (760) 245-1661 x1864

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