The following Material Safety Data Sheets (MSDSs) and Technical Data Sheets (P/N R7769-7) are for the materials included in P/N R7769 Kit for compliance with R44 Service Bulletin SB-89 or R66 Service Bulletin SB-13.

R7769-3, ALODINE 1201, 1OZ
R7769

Safety Data Sheet

Revision Number: 004.5

Issue date: 09/11/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: BONDERITE M-CR 1201 AERO known as ALODINE 1201
IDH number: 594418
Product type: Conversion coating
Restriction of Use: None identified
Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
DANGER:	MAY CAUSE AN ALLERGIC SKIN REACTION. MAY CAUSE CANCER.

HAZARD CLASS	HAZARD CATEGORY
SKIN SENSITIZATION	1
CARCINOGENICITY	1A

PICTOGRAM(S)

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing vapors, mist, or spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves. Use personal protective equipment as required.

Response: IF ON SKIN: Wash with plenty of soap and water. IF exposed or concerned: Get medical attention. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse.

Storage: Store locked up.

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Chromic acid	7738-94-5	1 - 5

Ferrocyanide compound	Proprietary	0.1 - 1

* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

Skin contact: Remove contaminated clothing and footwear. Rinse with large amounts of running water. GET MEDICAL ATTENTION IMMEDIATELY! If iced 0.13% benzalkonium chloride (Zephiran) solution or 2.5% calcium gluconate gel are available, the rinsing may be limited to 5 minutes, with the soaks or gel applied as soon as the rinsing is stopped. If benzalkonium chloride or calcium gluconate gel is not available, rinsing must continue until medical treatment is provided.

Eye contact: In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion: Get immediate medical attention. DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Symptoms: See Section 11.

Notes to physician: Treatment of hypocalcemia associated with corrosive fluoride compounds exposure may be corrected by intravenous calcium gluconate or calcium chloride. Treatment of hypomagnesemia may be corrected by intravenous magnesium sulfate.

5. FIRE FIGHTING MEASURES

Extinguishing media: Use media appropriate for surrounding material.

Special firefighting procedures: Wear full protective clothing. Wear self-contained breathing apparatus.

Unusual fire or explosion hazards: This product is an aqueous mixture which will not burn.

Hazardous combustion products: Irritating and toxic gases or fumes may be released during a fire.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Wear appropriate protective equipment and clothing during clean-up. Do not allow product to enter sewer or waterways.

Clean-up methods: Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of according to Federal, State and local governmental regulations.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. For industrial use only. Clothing or other material wet with this product and allowed to dry may become flammable.

Storage: For safe storage, store at or above 40 °F (4.4 °C)
Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Thaw and mix thoroughly if frozen.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Chromic acid	0.05 mg/m3 TWA (as Cr)	0.005 mg/m3 TWA 0.0025 mg/m3 OSHA_ACT 0.1 mg/m3 Ceiling	None	None
Ferrocyanide compound	None	None	None	None

Engineering controls: Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

Respiratory protection: If ventilation is not sufficient to effectively prevent buildup of aerosols, mists or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Eye/face protection: Wear safety glasses; chemical goggles (if splashing is possible).

Skin protection: Chemical resistant, impermeable gloves. Use of impervious apron and boots are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Orange
Odor: None
Odor threshold: Not available.
pH: < 2
Vapor pressure: Not applicable
Boiling point/range: > 100 °C (> 212°F)
Melting point/ range: 0 °C (32°F) calculated
Specific gravity: 1.00 - 1.02 at 60 °F (15.56 °C)
Vapor density: Not applicable
Flash point: Not applicable
Flammable/Explosive limits - lower: Not applicable
Flammable/Explosive limits - upper: Not applicable
Autoignition temperature: Not applicable
Evaporation rate: Not applicable
Solubility in water: Complete
Partition coefficient (n-octanol/water): Not determined
VOC content: Not applicable
Viscosity: Not available.
Decomposition temperature: Not available.

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions.

Hazardous reactions: None under normal processing.

Hazardous decomposition products: May liberate hydrogen fluoride. When heated to decomposition or on contact with strong acids potassium ferric cyanide may emit fumes of cyanide.

Incompatible materials: Avoid contact with organic materials, oils, greases, and any oxidizable materials. This product may react with strong alkalies.

Reactivity: Not available.

Conditions to avoid: Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects/Symptoms

Inhalation: This product is irritating to the respiratory system. May cause severe irritation.
Skin contact: This product is severely irritating to the skin. Contact with broken skin may lead to formation of firmly marginated "chrome sores". Product contains chromium, which may cause an allergic skin sensitization reaction. Massive overexposures may lead to kidney failure and death. A component in this product may be absorbed through the skin, especially if skin is damaged.
Eye contact: Contact can cause moderate to severe irritation and possible injury to the eyes.
Ingestion: Ingestion of this product may cause nausea, vomiting and diarrhea.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Chromic acid	None	Allergen, Blood, Carcinogen, Central nervous system, Corrosive, Developmental, Eyes, Gastrointestinal, Irritant, Kidney, Liver, Mutagen, Reproductive, Respiratory
Ferrocyanide compound	None	Cellular

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Chromic acid	No	No	Yes
Ferrocyanide compound	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: This product, if discarded directly, would be a characteristic RCRA corrosive waste (D002). This product contains chromium which is a hazardous waste (D007).

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: RQ, Environmentally hazardous substances, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III
DOT Hazardous Substance(s): Chromic acid

International Air Transportation (ICAO/IATA)

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III

Water Transportation (IMO/IMDG)

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III
Additional information: IMDG-Code: Segregation group 1- Acids

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: Chromic acid (CAS# 7738-94-5).

CERCLA/SARA Section 302 EHS: None above reporting de minimis
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health
CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Chromic acid (CAS# 7738-94-5).
CERCLA Reportable quantity: Chromic acid (CAS# 7738-94-5) 10 lbs. (4.54 kg)

California Proposition 65: This product contains a chemical known in the State of California to cause cancer.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New information added in Section(s): 1,2, 4, 5 and 9.

Prepared by: John DiCerbo, Sr. Regulatory Affairs Specialist

Issue date: 09/11/2014

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Type of Bulletin: Technical Process Bulletin
Product Title: ALODINE® 1201
Product View: ALODINE® 1201
Description: Brush or Immersion Application
Status: complete

Technical Process Bulletin

Technical Process Bulletin No. 235110
This Revision: 01/08/2004

ALODINE® 1201
Brush or Immersion Application

1. Introduction:

ALODINE 1201 is a nonflammable, chromic acid based, coating chemical that will produce a chrome conversion coating on aluminum and its alloys.

The coating formed by ALODINE 1201 is gold to tan in color and it becomes a part of the aluminum surface. This chrome conversion coating offers the best affordable substrate for both paint adhesion and corrosion resistance.

2. Operating Summary:

Brush Application: Apply to a chemically cleaned surface using the solution undiluted from the container.
Immersion Application: For each 100 parts of bath, mix 33 parts of ALODINE 1201 and 67 parts of water.
Operation and Control: Time 2 to 5 minutes Temperature Ambient to 100° Fahrenheit

3. The Process:

The process to prepare metal for painting normally consists of the following steps:

A. Cleaning (ALUMIPREP® 33, Technical Process Bulletin No. 1146)
B. Water rinsing

C. Apply ALODINE 1201
D. Water rinsing
F. Drying

The work, after processing and drying, is ready to be painted.

4. Materials:

ALODINE 1201
ALUMIPREP 33

5. Equipment:

Acid resisting (rubber, stainless steel or plastic) buckets, troughs or other suitable containers should be used to hold the ALODINE 1201 or diluted ALODINE 1201 solution. Ordinary steel pails may be used, but only for a short time. Galvanized containers should not be used. If production conditions warrant, troughs may be installed to collect the ALODINE 1201 coating chemical run-off for reuse.

Long handled, window type brushes, clean cloths or synthetic sponges may be used to brush on the ALODINE 1201.

6. Surface Preparation:

Cleaning:
ALUMIPREP 33 is recommended for cleaning. ALUMIPREP 33 is a nonflammable, phosphoric acid based cleaner which produces a chemically clean and corrosion free aluminum surface. Instructions for use of ALUMIPREP 33 are found in Technical Process Bulletin No. 1146.

Water Rinsing:
After cleaning, the metal must be thoroughly rinsed with water. Inadequate rinsing may contaminate an ALODINE 1201 immersion bath or result in a surface condition which may cause corrosion of the finished part.

7. Apply ALODINE 1201:

Buildup:
For brush application, ALODINE 1201 is applied to a chemically cleaned surface using the solution undiluted.

For immersion application, ALODINE 1201 is diluted by mixing 33 parts of ALODINE 1201 and 67 parts of water for each 100 parts of bath volume required.

NOTE: Operators should be equipped with rubber gloves, aprons and goggles to avoid contact with the solution. Adequate ventilation should be provided.

Operation:
Time: 2 minutes to 5 minutes.
Temperature: room temperature to 100° Fahrenheit.

ALODINE 1201 coating chemical should not be allowed to dry on the metal surface. With brush application the surface should be rewet with fresh ALODINE 1201 several times during the treatment time. If drying does occur, rewet with ALODINE 1201 coating chemical prior to water rinsing.

Selecting the size of the area to be treated at one time depends on the method of application, condition of the metal surface, method in which the surface was cleaned, temperature and part configuration.

Colors of the coating produced by ALODINE 1201 will vary from a light gold to a dark tan. Variations in color result from different alloys, metal hardness, metal age, method of cleaning, etc.

Powdering of a chrome conversion coating can result from poor cleaning, drying, over reacting, or for other reasons. Powder can affect paint adhesion. Gently wipe and remove the powder, without abrading the chemical coating, with a dry, clean rag after the work has dried. Caution should be taken not to redeposit oils, lint or other soils back on the aluminum surface.

8. After Treatment:

Water Rinsing:
A thorough rinse with clean water is necessary to remove residual ALODINE 1201 coating chemical salts from the metal surface. Blistering and corrosion problems under paint are often the results of poor rinsing. Chemical salts trapped under a paint film will eventually result in blistering or corrosion problems.

Drying:
As an aid to drying, heating the treated part, blowing off with clean, dry, filtered, forced air or gently wiping with a dry, clean rag will lessen the time required. Do not allow the aluminum metal temperature to exceed 140 Fahrenheit.

Paint soon after the work is dry in order to prevent soils or oxidation from recontaminating the prepared metal surface.

9. Storage Requirements:

ALODINE 1201 coating chemical will freeze at 32° Fahrenheit. It is recommended that the product be stored where freezing will not occur. However, should it freeze, simply thaw it in a warm place and stir it prior to use.

10. Waste Disposal Information:

Applicable regulations concerning disposal and discharge of chemicals should be consulted and followed.

Disposal information for the chemical products used in this process is given on the Material Safety Data Sheet for each product.

The processing bath is acidic and contains hexavalent chromium. Waste treatment and neutralization may be required prior to discharge to sewer.

11. Precaution:

Consult the appropriate Material Safety Data Sheets for safety and handling guidelines for the products listed in this bulletin.

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Henkel Technologies
32100 Stephenson Highway
Madison Heights, MI 48071
Telephone: 248-583-9300
Fax: 248-583-2976

Henkel Technologies
32100 Stephenson Highway
Madison Heights, MI 48071
Telephone: 248-583-9300
Fax: 248-583-2976

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Revision date: 04/20/1998Print date: 09/18/2006

Verborgene Felder: 12Parker Amchem

Form Revised 04 June 2001

R7769-2, ALUMIPREP 33, 1OZ

Revision Number: 008.0

Issue date: 11/10/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **BONDERITE C-IC 33 ACID DEOXIDIZER known as TURCO ALUMIPREP 33**

IDH number: 592770

Product type: Acidic Cleaner for Industrial Application

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER: COMBUSTIBLE LIQUID.
MAY BE CORROSIVE TO METALS.
HARMFUL IF SWALLOWED OR IN CONTACT WITH SKIN.
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.
MAY CAUSE AN ALLERGIC SKIN REACTION.

HAZARD CLASS	HAZARD CATEGORY
FLAMMABLE LIQUID	4
CORROSIVE TO METALS	1
ACUTE TOXICITY ORAL	4
ACUTE TOXICITY DERMAL	4
SKIN CORROSION	1B
SERIOUS EYE DAMAGE	1
SKIN SENSITIZATION	1

PICTOGRAM(S)

Precautionary Statements

Prevention: Keep away from heat, sparks, open flames, hot surfaces - no smoking. Keep only in original container. Do not breathe vapors, mist, or spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection.

Response: If SWALLOWED: Immediately call poison control or physician if you feel unwell. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to remove. Continue rinsing. Immediately call a poison control center or physician. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse. In case of fire: Use foam, dry chemical or carbon dioxide to extinguish. Absorb

spillage to prevent material damage.

Storage: Store in a well-ventilated place. Keep cool. Store locked up. Store in corrosive resistant container with a resistant inner liner.

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Phosphoric acid	7664-38-2	10 - 30
2-Butoxyethanol	111-76-2	10 - 30
Potassium phosphate	Proprietary	1 - 5
Hydrogen fluoride	7664-39-3	0.1 - 1

* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

Skin contact: Remove contaminated clothing and footwear. For skin contact, flush with large amounts of water. Seek immediate medical attention.

Eye contact: In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion: Get immediate medical attention. Do not induce vomiting. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Symptoms: See Section 11.

Notes to physician: Treatment of hypocalcemia associated with corrosive fluoride compounds exposure may be corrected by intravenous calcium gluconate or calcium chloride. Treatment of hypomagnesemia may be corrected by intravenous magnesium sulfate.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide. Use media appropriate for surrounding material.

Special firefighting procedures: Wear full protective clothing. Wear self-contained breathing apparatus.

Unusual fire or explosion hazards: Fire and explosion hazards are moderate when this product is exposed to heat or flame. Vapors are heavier than air and may travel along floor to an ignition source.

Hazardous combustion products: Irritating and toxic gases or fumes may be released during a fire.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Wear appropriate protective equipment and clothing during clean-up.

Clean-up methods: Absorb spill with inert material. Shovel material into appropriate container for disposal.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not inhale vapors and fumes. Keep away from heat, spark and flame. For industrial use only.

Storage: For safe storage, store between 40 °F (4.4 °C) and 100 °F (37.8 °C) Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers. Thaw and mix thoroughly if frozen.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Phosphoric acid	3 mg/m3 STEL 1 mg/m3 TWA	1 mg/m3 PEL	None	None
2-Butoxyethanol	20 ppm TWA	50 ppm (240 mg/m3) PEL (SKIN)	None	None
Potassium phosphate	None	None	None	None
Hydrogen fluoride	2 ppm Ceiling (as F) 0.5 ppm TWA (as F) (SKIN) (as F)	2.5 mg/m3 PEL (as F) 3 ppm TWA	None	None

Engineering controls: Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces.

Respiratory protection: If ventilation is not sufficient to effectively prevent buildup of aerosols, mists or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Eye/face protection: Wear chemical goggles; face shield (if splashing is possible).

Skin protection: Wear impervious gloves for prolonged contact. Use of impervious apron and boots are recommended. Gloves should be tested to determine suitability for prolonged contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Colorless
Odor: Solvent
Odor threshold: Not available.
pH: < 2
Vapor pressure: Not determined

Boiling point/range:	> 200 °F (> 93.3 °C)
Melting point/ range:	15 °F (-9.4 °C)
Specific gravity:	1.12 - 1.16 at 15.6 °C (60.08 °F)
Vapor density:	Not determined
Flash point:	62.8 °C (145.04 °F) Tagliabue closed cup
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not applicable
Evaporation rate:	Not available.
Solubility in water:	Complete
Partition coefficient (n-octanol/water):	Not determined
VOC content:	14 % (by weight) (estimated)
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable at normal conditions.
Hazardous reactions:	Will not occur.
Hazardous decomposition products:	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons. May liberate hydrogen fluoride.
Incompatible materials:	This product may react with strong oxidizing agents.
Reactivity:	Not available.
Conditions to avoid:	Keep away from heat, ignition sources and incompatible materials.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects/Symptoms

Inhalation: Mists, vapors or liquid may cause severe irritation or burns. Inhalation of mists or vapors may produce upper airway edema, wheezing, pulmonary edema, pneumonitis and respiratory failure.

Skin contact: Corrosive to the skin. Contact with the skin or mucous membranes may cause severe irritation and burns. Following skin exposure to this product, the sensation of irritation or pain may be delayed. A component in this product may be harmful or fatal if absorbed through the skin.

Eye contact: This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.

Ingestion: This product may produce corrosive damage to the gastrointestinal tract if it is swallowed. May cause dizziness, incoordination, headache, nausea, and vomiting. Product contains a glycol ether which caused blood disorders in rabbits.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Phosphoric acid	Oral LD50 (RAT) = 1,530 mg/kg Dermal LD50 (RABBIT) = 2,740 mg/kg	Irritant, Corrosive
2-Butoxyethanol	Oral LD50 (RAT) = 560 mg/kg Oral LD50 (RABBIT) = 0.32 g/kg Oral LD50 (RAT) = 1.48 g/kg Dermal LD50 (RABBIT) = 400 mg/kg Inhalation LC50 (RAT, 4 h) = 486 ppm Inhalation LC50 (RAT, 4 h) = 450 ppm	Blood, Central nervous system, Irritant, Kidney, Liver
Potassium phosphate	None	Gastrointestinal, Irritant, Metabolic
Hydrogen fluoride	Inhalation LC50 (RAT, 15 min) = 2689 ppm Inhalation LC50 (RAT, 1 h) = 1278 ppm Inhalation LC50 (RAT, 30 min) = 2042 ppm Inhalation LC50 (RAT, 5 min) = 4970 ppm	Allergen, Blood, Bone Marrow, Cardiac, Central nervous system, Corrosive, Irritant, Kidney, Liver, Lung, Muscle, Nervous System, Respiratory, Teeth

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Phosphoric acid	No	No	No
2-Butoxyethanol	No	No	No
Potassium phosphate	No	No	No
Hydrogen fluoride	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal. This product contains a alkylphenol or nonylphenol ethoxylate.

Hazardous waste number: This product, if discarded directly, would be a characteristic RCRA corrosive waste (D002). This product contains a component or components identified as hazardous under 40 CFR 261.24. U134: Hydrogen fluoride

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid, Hydrofluoric acid)
Hazard class or division: 8
Identification number: UN 3264
Packing group: II
DOT Hazardous Substance(s): Hydrofluoric acid, Phosphoric acid

International Air Transportation (ICAO/IATA)

Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid, Hydrofluoric acid)
Hazard class or division: 8
Identification number: UN 3264
Packing group: II

Water Transportation (IMO/IMDG)

Proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric acid, Hydrofluoric acid)
Hazard class or division: 8
Identification number: UN 3264
Packing group: II

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: None above reporting de minimis

CERCLA/SARA Section 302 EHS: None above reporting de minimis
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health, Fire
CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). 2-Butoxyethanol (CAS# 111-76-2).
CERCLA Reportable quantity: Phosphoric acid (CAS# 7664-38-2) 5,000 lbs. (2,270 kg)
Hydrogen fluoride (CAS# 7664-39-3) 100 lbs. (45.4 kg)

California Proposition 65: This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Safety Data Sheet format.

Prepared by: John DiCerbo, Sr. Regulatory Affairs Specialist

Issue date: 11/10/2014

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation and its affiliates ("Henkel") does not assume responsibility for any results obtained by persons over whose methods Henkel has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any Henkel's products. In light of the foregoing, Henkel specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel's products. Henkel further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

Technical Process Bulletin

Technical Process Bulletin No. 234449
This Revision: 08/03/1990

ALUMIPREP® 33
Cleaner And Conditioner For Aluminum

1. Introduction:

ALUMIPREP 33 is a non-flammable phosphoric acid based cleaner, brightener and prepaint conditioner for aluminum. ALUMIPREP 33 should not be used on high copper bearing aluminum alloys or aluminum castings. Cleaning with ALUMIPREP 33 produces a chemically clean and corrosion free aluminum surface.

ALUMIPREP 33 can be used to deep clean and brighten an aluminum surface prior to welding, painting or to prepare the surface for a subsequent conversion coating. ALODINE 1201 (opaque) and ALODINE 1001 (invisible) coating chemicals produce the best affordable substrate for both paint adhesion and corrosion resistance.

2. Operating Summary:

Brush Application:

For light oxidation and corrosion removal dilute one part ALUMIPREP 33 with five parts water.

For heavy oxidation and corrosion removal dilute one part ALUMIPREP 33 with two parts water.

Immersion Application:

For each 100 parts of bath, add 25 parts of ALUMIPREP 33 to 75 parts of water.

Spray Application using 62-G Applicator:

Set dilution control on 3 allowing a mix of one part ALUMIPREP 33 to three parts water.

3. The Process:

The usual process to clean and condition aluminum surfaces consists of the following steps:

A. Apply the ALUMIPREP 33 solution
B. Water rinse
C. Dry

The usual process to prepare the aluminum surfaces for a chemical coating consists of the following steps:

A. Apply the ALUMIPREP 33 solution
B. Water rinse
C. Apply an ALODINE coating solution
D. Water rinse
E. Dry

4. Materials:

ALUMIPREP 33
ALODINE® 1201 (optional)
ALODINE 1001 (optional)

5. Equipment:

Acid resisting (rubber, stainless steel or plastic) buckets, troughs or other suitable container should be used to hold the diluted ALUMIPREP 33 solution. Ordinary steel pails may be used, but only for a short time. Galvanized containers should not be used. If production conditions warrant, troughs may be installed to collect the ALUMIPREP 33 coating chemical run-off for reuse.

Long-handled, window type brushes, clean cloths or synthetic sponges may be used to brush on the ALUMIPREP solution.

6. Apply the ALUMIPREP 33 solution:

Buildup:
For brush application for light oxidation and corrosion removal, dilute one part ALUMIPREP 33 with five parts water.

For brush application for heavy oxidation and corrosion removal, dilute one part ALUMIPREP 33 with two parts water.

For immersion application, add 25 parts of ALUMIPREP 33 to 75 parts of water for each 100 parts of bath.

For spray application using 62-g applicator, set dilution control on 3 allowing a mix of one part ALUMIPREP 33 to three parts water.

NOTE: Operators should be equipped with rubber gloves, aprons and goggles to avoid contact with the solution. Adequate ventilation should be provided.

Operation:
Selecting the size area to be treated at one time will depend on the method of application, condition of the metal surface, temperature and part configuration. A typical treatment time is where the ALUMIPREP 33 solution is in contact with the metal surface between two and five minutes.

ALUMIPREP 33 solution is normally applied at temperatures between room and 120° Fahrenheit. If drying does occur, rewet the surface with ALUMIPREP 33 solution, prior to water rinsing.

ALUMIPREP 33 solution should not be allowed to dry on the metal surface or permitted to reoxidize prior to a thorough rinse. A thorough rinse with clean water is necessary to remove both residual ALUMIPREP 33 solution and oils that have been lifted from the metal surface.

Good results start with cleaning. A clean surface is a "water break-free surface". The rinse water sheets out over the aluminum surface, while oil remaining on the surface will cause the water to bead up. Chemical cleaners will lift and break down oils on the surface and assist in rinsing them from the surface on the metal.

ALUMIPREP 33 cleaning and conditioning chemicals aggressively attack aluminum oxidation and corrosion to completely remove them, leaving a bright clean metal surface. In the case of heavy corrosion, its removal can be aided by the use of scrubbing. Often a scotch-brite pad is used for scrubbing.

Thorough rinsing after treatment is necessary to remove the residual salts and soils. Their removal will not contaminate a coating chemical or leave a surface condition that will again have a high potential for corrosion.

To avoid streaks and patterns, work from bottom to top.

7. Storage Requirements:

ALUMIPREP 33 will freeze at 15° Fahrenheit. Freezing is not detrimental to the product. It is recommended that the product be kept from freezing. However, should the product freeze, simply thaw it in a warm place and stir it prior to use.

8. Waste Disposal Information:

Applicable regulations concerning disposal and discharge of chemicals should be consulted and followed.

Disposal information for the chemical products used in this process is given on the Material Safety Data Sheet for each product.

9. Precautionary Information:

Before handling the chemical products used in the process, the first aid and handling recommendations on the Material Safety Data Sheet for the product should be read, understood and followed.

The processing bath is acidic. Do not get in eyes, on skin or on clothing. In case of contact, follow the recommendations found in the Material Safety Data Sheet for ALUMIPREP 33.

-* * * * *-

Henkel Surface Technologies
32100 Stephenson Highway
Madison Heights, MI 48071
Telephone: 248-583-9300
Fax: 248-583-2976

373P29950

R7690-1OZ, 373-P-29950 BLACK PAINT

****** SECTION 1 - Product and Company Identification ******

Manufacturer: E.I. DuPont de Nemours & Co
Dupont Performance Coatings
Wilmington, DE, 19898

Telephone: Product Information: (800) 441-7515
Medical Emergency: (800) 441-3637
Transportation Emergency: (800) 424-9300 (CHEMTREC)

PRODUCT NAME: IMRON FLAT BLACK

PRODUCT CODE: 373P29950 030127

Chemical Family: TOPCOAT - SOLVENTBORNE

****** SECTION 2 - Composition, Information on Ingredients ******

CAS #	Ingredient	Concentration/ Range (%)	Exposure Limits**
170475-04-4	ACRYLIC POLYMER	1- 4	A None O None
7631-86-9	AMORPHOUS SILICA	5- 15	A 10.0 mg/m3 Total Dust O 20.0 mppcf D 3.0 mg/m3 8 hr PEL
123-86-4	BUTYL ACETATE	1- 4	A 200.0 ppm 15 min STEL A 150.0 ppm O 150.0 ppm
67-64-1	ACETONE	5- 15	A 750.0 ppm 15 min STEL A 500.0 ppm O 1000.0 ppm D 500.0 ppm 8 & 12 hour TWA
78-93-3	METHYL ETHYL KETONE	1- 4	A 300.0 ppm 15 min STEL A 200.0 ppm O 200.0 ppm D 300.0 ppm 15 min TWA

****** SECTION 2 - Composition, Information on Ingredients ******
Cont'd

			D	200.0 ppm 8 & 12 hour TWA
108-88-3	TOLUENE	1	A	20.0 ppm
			O	300.0 ppm CEIL
			O	500.0 ppm 10 min TWA
			O	200.0 ppm
			D	50.0 ppm 8 & 12 hour TWA
110-43-0	METHYL AMYL KETONE	16- 26	A	50.0 ppm
			O	100.0 ppm
100-41-4	ETHYLBENZENE	0.7	A	125.0 ppm 15 min STEL
			A	100.0 ppm
			O	100.0 ppm
			D	25.0 ppm 8 & 12 hour TWA
1330-20-7	XYLENE	3- 4	A	150.0 ppm 15 min STEL
			A	100.0 ppm
			O	100.0 ppm
			D	150.0 ppm 15 min STEL
			D	100.0 ppm 8 & 12 hour TWA
1333-86-4	CARBON BLACK	0.9	A	3.5 mg/m3
			O	3.5 mg/m3
			D	0.5 mg/m3 8 & 12 hour TWA
7727-43-7	BARIUM SULFATE	5- 15	A	10.0 mg/m3 Total Dust
			A	5.0 mg/m3 Respirable Dust
			O	15.0 mg/m3 Total Dust
			O	5.0 mg/m3 Respirable Dust
			D	10.0 mg/m3 Total Dust
			D	5.0 mg/m3 8 & 12 hour TWA Respirable Dust

****** SECTION 2 - Composition, Information on Ingredients ******
Cont'd

1332-58-7	KAOLIN	16- 26	A	2.0 mg/m3 Respirable Dust
			O	15.0 mg/m3 TWA Total Dust
			O	5.0 mg/m3 TWA Respirable Dust
35561-07-0*	POLYESTER RESIN	16- 26	A	None
			O	None
471-34-1	CALCIUM CARBONATE	5- 15	A	10.0 mg/m3
			O	15.0 mg/m3 Total Dust
			O	5.0 mg/m3 Respirable Dust

* Assigned CAS No. - An official CAS No. does not exist. The CAS No. shown is for a similar chemical.

OSHA HAZARDOUS? Yes

** A = ACGIH, O = OSHA, D = Dupont, S = Supplier (For additional definition of terms, see Section 16). Limits are 8-hour TWA unless otherwise specified.

****** SECTION 3 - Hazards Information ******

Emergency Overview:
DANGER! EXPOSURE MAY CAUSE LUNG INJURY AND ALLERGIC RESPIRATORY REACTION. EFFECTS MAY BE PERMANENT. FLAMMABLE LIQUID AND VAPOR. VAPORS AND SPRAY MIST HARMFUL IF INHALED. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS SUCH AS DIZZINESS, HEADACHE, OR NAUSEA. MAY CAUSE NOSE, THROAT, EYE AND SKIN IRRITATION. CAN BE ABSORBED THROUGH THE SKIN.

Potential Health Effects:
Inhalation:
If this product mixed with an isocyanate activator/hardener (see MSDS for the activator), the following health effects may apply: Exposure to isocyanates may cause respiratory sensitization. This effect may be permanent. Symptoms include an asthma-like reaction with shortness of breath, wheezing, cough or permanent lung sensitization. This effect may be delayed for several hours after exposure. Repeated overexposure to isocyanates may cause a decrease in lung function, which may be permanent. Individuals with lung or breathing problems or prior reactions to isocyanates must not be exposed to vapors or spray mist of this product.

****** SECTION 3 - Hazards Information ******
Cont'd

May cause nose and throat irritation. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ingestion:
May result in gastrointestinal distress.

Skin or eye contact:
May cause irritation or burning of the eyes. Repeated or prolonged liquid contact may cause skin irritation with discomfort and dermatitis.

Other Potential Health Effects in addition to those listed above:

ACRYLIC POLYMER
Contact may cause skin irritation with discomfort or rash.
May cause eye irritation with discomfort, tearing, or blurred vision.

BUTYL ACETATE
May cause abnormal liver function.
The following medical conditions may be aggravated by exposure: respiratory system
Tests for embryotoxic activity in animals has been inconclusive.
Rats exposed to very high airborne levels have exhibited high frequency hearing deficits. The significance of this to man is unknown.
Has been toxic to the fetus in laboratory animals at doses that are toxic to the mother.

ACETONE
The following medical conditions may be aggravated by exposure: lung disease eye disorders skin disorders
Overexposure may cause damage to any of the following organs/systems: blood central nervous system eyes kidneys liver respiratory system skin

METHYL ETHYL KETONE
Material is irritating to mucous membranes and upper respiratory tract.
Increased susceptibility to the effects of this material may be observed in people with preexisting disease of any of the following: central nervous system eyes respiratory system skin
Prolonged or repeated overexposure may cause any of the following: conjunctivitis dermatitis
High concentrations have caused embryotoxic effects in laboratory animals.
Aspiration may occur during swallowing or vomiting, resulting in lung damage.
Ingestion may cause headache, nausea, vomiting, dizziness, and

****** SECTION 3 - Hazards Information ******
Cont'd

drowsiness.

TOLUENE
Increased susceptibility to the effects of this material may be observed in people with preexisting disease of any of the following: central nervous system kidneys liver respiratory system skin

Can be absorbed through the skin in harmful amounts.
Recurrent overexposure may result in liver and kidney injury.
High airborne levels have produced irregular heart beats in animals and occasional palpitations in humans.
Rats exposed to very high airborne levels have exhibited high frequency hearing deficits. The significance of this to man is unknown.
WARNING: This chemical is known to the State of California to cause birth defects or other reproductive harm.

ETHYLBENZENE
Is an IARC, NTP or OSHA carcinogen.
Increased susceptibility to the effects of this material may be observed in people with preexisting disease of any of the following: central nervous system kidneys liver lungs
Recurrent overexposure may result in liver and kidney injury.
Studies in laboratory animals have shown reproductive, embryotoxic and developmental effects.
WARNING: This chemical is known to the State of California to cause cancer.

XYLENE
Increased susceptibility to the effects of this material may be observed in people with preexisting disease of any of the following: bone marrow cardiovascular system central nervous system kidneys liver lungs
Recurrent overexposure may result in liver and kidney injury.
High exposures may produce irregular heart beats.
Canada classifies Xylene as a developmental toxin as high exposures to xylenes in some animal studies have been reported to cause health effects on the developing fetus/embryo. These effects were often at levels toxic to the adult animal. The significance of these effects to humans is not known.
Repeated or prolonged skin contact may cause any of the following: irritation dryness cracking of the skin

CARBON BLACK
Is an IARC, NTP or OSHA carcinogen.
Has shown carcinogenic activity in laboratory animals at high doses. Significance to man is unknown.
The following medical conditions may be aggravated by exposure: asthma respiratory disease

****** SECTION 3 - Hazards Information ******
Cont'd

WARNING: This chemical is known to the State of California to cause cancer.

KAOLIN
The following medical conditions may be aggravated by exposure:
asthma dermatitis
Repeated or prolonged inhalation may cause any of the following: lung injury

NOTE:
If a chemical listed above is not identified as a carcinogen it is not an "IARC, NTP, or OSHA carcinogen".

****** SECTION 4 - First Aid Measures ******

First Aid Procedures:
Inhalation:
If affected by inhalation of vapor or spray mist, move to fresh air If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing difficulty persists, or occurs later, consult a physician.
Ingestion:
In the unlikely event of ingestion, DO NOT INDUCE VOMITING. Call a physician immediately and have names of ingredients available.
Skin or eye:
In case of eye contact, immediately flush with plenty of water for at least 15 minutes; call a physician. In case of skin contact, wash thoroughly with soap and water. If irritation occurs, contact a physician.

****** SECTION 5 - Firefighting Measures ******

Flash Point (Method) 20 deg F to below 73 deg F Closed Cup
Approx. flammable limits LFL 1.1 % UFL 12.8 %
Auto ignition temperature 393.0 - 465.0 Deg C
Hazardous Combustion Products:
CO, C02, smoke, and oxides of any heavy metals that are reported in "Composition, Information on Ingredients" section.
Extinguishing media:
Universal aqueous film-forming foam, carbon dioxide, dry chemical.
Special fire fighting procedures:
Full protective equipment, including self-contained breathing apparatus, is recommended. Water from fog nozzles may be used to prevent pressure build-up.
Fire & explosion hazards:
Flammable liquid. Vapor/air mixture will burn when an ignition source is present.

****** SECTION 6 - Accidental Release Measures ******

Procedures for cleaning up spills or leaks:
Ventilate area. Remove sources of ignition. Prevent skin and eye contact and breathing of vapor.

If the material contains, or is mixed with an isocyanate activator/hardener: Wear a positive-pressure, supplied-air respirator (NIOSH approved TC-19C), eye protection, gloves and protective clothing. Pour liquid decontamination solution over the spill and allow to sit at least 10 minutes. Typical decontamination solutions for isocyanate containing materials are: 20% Surfactant (Tergitol TMN 10) and 80% Water OR 0 -10% Ammonia, 2-5% Detergent and Water (balance) Pressure can be generated. Do not seal waste containers for 48 hours to allow C02 to vent. After 48 hours, material may be sealed and disposed of properly. If material does not contain or is not mixed with an isocyanate activator/hardener: Wear a properly fitted air-purifying respirator with organic vapor cartridges (NIOSH approved TC-23C), eye protection, gloves and protective clothing. Confine, remove with inert absorbent, and dispose of properly.

****** SECTION 7 - Handling and Storage ******

Precautions to be taken in handling and storing:
Observe label precautions. Keep away from heat, sparks, flame, static discharge and other sources of ignition. VAPORS MAY CAUSE FLASH FIRE. Close container after each use. Ground containers when pouring. Do not transfer contents to bottles or unlabeled containers. Wash thoroughly after handling and before eating or smoking. Do not store above 120 deg F.
OSHA/NFPA Storage Classification: IB
Other precautions:
If material is a coating: do not sand, flame cut, braze or weld dry coating without a NIOSH approved air purifying respirator with particulate filters or appropriate ventilation , and gloves.

****** SECTION 8 - Exposure Controls or Personal Protection ******

Engineering controls and work practices:
Ventilation:
Provide sufficient ventilation in volume and pattern to keep contaminants below applicable exposure limits.

Personal Protective Equipment:
Personal protective equipment should be worn to prevent contact with eyes, skin or clothing.
Respiratory:
Do not breathe vapors or mists. When this product is used with an isocyanate activator/hardener, wear a positive-pressure, supplied-air respirator (NIOSH approved TC-19C) while mixing activator/hardener with paint, during application and until all vapors and spray mist are exhausted. If product is used without isocyanate activator/hardener, a properly fitted air-purifying respirator with

****** SECTION 8 - Exposure Controls or Personal Protection ******
Cont'd

organic vapor cartridges (NIOSH TC-23C) and particulate filter (NIOSH TC-84A) may be used. Follow respirator manufacturer s directions for respirator use. Do not permit anyone without protection in the painting area. Refer to the hardener/activator label instructions and MSDS for further information. Individuals with history of lung or breathing problems or prior reaction to isocyanates should not use or be exposed to vapor or spray mist if mixed with isocyanate activators/hardeners.

Protective clothing:

Neoprene gloves and coveralls are recommended.

Eye protection:

Desirable in all industrial situations. Goggles are preferred to prevent eye irritation. If safety glasses are substituted, include splash guard or side shields.

****** SECTION 9 - Physical and Chemical Properties ******

Evaporation Rate	Slower than Ether
Vapor Pressure of principal solvent	2.80 hPa @ 20 Deg C
Solubility of solvent in water	NIL
Vapor density of principal solvent (Air = 1)	3.90
Approx. Boiling range	56 - 152 DEG (C)
Approx. Freezing range	-36 - -35 DEG (C)
Gallon weight (lbs/gal)	10.28
Specific gravity	1.23
Percent volatile by volume	55.48
Percent volatile by weight	37.07
Percent solids by volume	44.52
Percent solids by weight	62.93
Odor	Characteristic Paint Odor
Appearance	liquid primer
Physical state	Liquid
pH (waterborne systems only)	Not Applicable
VOC* less exempt (lbs/gal)	3.6
VOC* as packaged (lbs/gal)	3.3

* VOC less exempt (theoretical) and VOC as packaged (theoretical) are based upon the VOC of the packaged material at the point of manufacture.

****** SECTION 10 - Stability and Reactivity ******

Stability:

Stable

Incompatibility (materials to avoid):

None reasonably foreseeable

Hazardous decomposition products:

CO, C02, smoke, and oxides of any heavy metals that are reported in

****** SECTION 10 - Stability and Reactivity ******
Cont'd

"Composition, Information on Ingredients" section.

Hazardous polymerization:
Will not occur.

Sensitivity to static discharge:
Solvent vapors in air may explode if static grounding and bonding is not used during transfer of this product.

Sensitivity to mechanical impact: None Known

****** SECTION 11 - Toxicological Information ******

No Information Available

****** SECTION 12 - Ecological Information ******

No Information Available

****** SECTION 13 - Disposal Considerations ******

Waste disposal method:
Do not allow material to contaminate ground water systems. Incinerate or otherwise dispose of waste material in accordance with Federal, State, Provincial, and local requirements. Do not incinerate in closed containers.

****** SECTION 14 - Transportation Information ******

No Information Available

****** SECTION 15 - Regulatory Information ******

TSCA Status:
In compliance with TSCA Inventory requirements for commercial purposes.

DSL Status:
All components of the mixture are listed on the DSL.

Photochemical Reactivity: Photochemically reactive

Other Regulatory Information:

CAS #	Ingredient	302	TPQ/RQ	EPCRA 311/312	313	CERCLA RQ(lbs)	HAP
170475-04-4	ACRYLIC POLYMER	N	NR	NA	N	NA	N
7631-86-9	AMORPHOUS SILICA	N	NR	NA	N	NR	N
123-86-4	BUTYL ACETATE	N	NR	A,C,F	N	NR	N
67-64-1	ACETONE	N	NR	A,C,F	N	5000	N
78-93-3	METHYL ETHYL KETONE	N	NR	A,C,F	N	5000	N
108-88-3	TOLUENE	N	NR	A,C,F	Y	1000	Y

****** SECTION 15 - Regulatory Information ******
Cont'd

110-43-0	METHYL AMYL KETONE	N	NR	A,C,F	N	NR	N
100-41-4	ETHYLBENZENE	N	NR	A,C,F	Y	1000	Y
1330-20-7	XYLENE	N	NR	A,C,F	Y	100	Y
1333-86-4	CARBON BLACK	N	NR	C	N	NR	N
7727-43-7	BARIUM SULFATE	N	NR	N	N	NR	N
1332-58-7	KAOLIN	N	NR	A,C	N	NR	N
35561-07-0	POLYESTER RESIN	N	NR	NA	N	NR	N
471-34-1	CALCIUM CARBONATE	N	NR	N	N	NR	N

Key:
EPCRA: Emergency Planning and Community Right-to-Know Act
(aka Title III, SARA)
302: Extremely hazardous substances
311/312 Categories: F = Fire Hazard A = Acute Hazard
R = Reactivity Hazard C = Chronic Hazard
P = Pressure Related Hazard
313 Information: Section 313 Supplier Notification - The chemicals listed above with a 'Y' in the 313 column are subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know act of 1986 and of 40 CFR 372.
CERCLA: Comprehensive Emergency Response, Compensation and Liability Act of 1980.
HAP = Listed as a Clean Air Act Hazardous Air Pollutant
TPQ = Threshold planning quantity
RQ = Reportable quantity
NA = not available
NR = not regulated

****** SECTION 16 - Additional Information ******

HMIS Rating: H: 2 F: 3 R: 0

Glossary of Terms:
ACGIH - American Conference of Governmental Industrial Hygienists
IARC - International Agency for Research on Cancer
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
STEL - Short term exposure limit
TWA - Time-weighted average
PNOR - Particles not otherwise regulated
PNOC - Particles not otherwise classified

NOTICE FROM DUPONT

The data in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or any process.

****** SECTION 16 Additional Information ******
Cont'd

MSDS prepared by:
Performance Coatings Regulatory Affairs Consultant.

DuPont™ 373P29950™ Satin Black

Flexible / Weatherable Urethane Primer

Type

DuPont™ 373P29950™ is a flexible and weatherable urethane primer.

Description

DuPont™ 373P29950™ is a lead and chromate-free flexible and weatherable primer that delivers outstanding chip and impact resistance. This high-solids primer has a ready-to-spray VOC of less than 3.5 lbs/gal.

Recommended Uses

For use over properly treated substrates such as plastics, fiberglass, and composite. It may also be used over properly treated metal substrates such as aluminum and steel. This weatherable primer can be topcoated or used without topcoat.

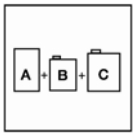
DuPont™ 373P29950™ is recommended for use with:

Primers	Corlar® 13550S™, Corlar® 13580S™
Surfacers	Corlar® 13580S™, URO® 13520™
Topcoats	Imron® AF3500™, Imron® AF400™
Basecoat/Clearcoat	Imron® AF700™, Imron® AF740™ Polyurethane Clearcoat

General Information for Use

Components

DuPont™ 373P29950™
DuPont™ 13100S™ Urethane Activator

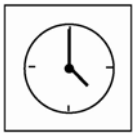


Mix Ratio

Thoroughly mix 373P29950™ prior to activation. Filter activated material prior to spray application.

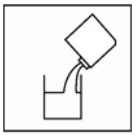
Two Component System	*Parts by Volume*
DuPont™ 373P29950™	4
DuPont™ 13100S™ Urethane Activator	1

Viscosity will be 9 - 12 seconds in a Zahn #3 cup.



Pot Life and Induction Time

Pot life is 1 hours at 70°F (21°C)
Pot life is 2 hours at 70°F (21°C) with 2 oz/gal DuPont™ 13801S™ or DuPont™ 13803S™
*Pot life is 45 min at 75°F (24°C) with 1 oz/gal 13808S™
No induction time is required prior to application.



Additives Optional

Accelerator** DuPont™ 13801S™ for improved pot life/dry (up to 2 oz per ready-to-spray gallon)
DuPont™ 13803S™ for improved dry time (up to 2 oz per ready-to-spray gallon)
DuPont™ 13808S™ for fast dry; limited area work (up to 1 oz per RTS gallon)

***Addition of 2 oz per ready-to-spray gallon of either DuPont 13801S™ or DuPont 13803S™ is recommended for most all applications in order to provide longer pot life.*

Reducers 13775S Medium / 13765S Fast VOC-Exempt Reducers (Optional up to 10%)

DUPONT® Aviation Finishes

Application

Substrates and Surface Preparation

Surface preparation is critical to topcoat appearance. Primers and surfacers should be properly applied and cured according to product recommendations. Surfaced substrate should be DA sanded with 240-grit or finer for best appearance. Substrate should always be thoroughly wiped/tacked immediately prior to topcoat application.

Gun Setup

Imron® AF400™ can be applied with conventional, HVLP, air-assisted airless, and electrostatic spray equipment using pressure, siphon, or gravity fluid delivery.

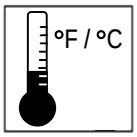
	Fluid Tip
Conventional	
Pressure Pot	1.0mm – 1.4mm (.039" - .055")
Siphon Feed	1.0mm – 1.4mm (.039" - .055")
Gravity Feed	1.2 mm – 1.6 mm (.047" - .063")
HVLP	
Pressure Pot	1.0 mm – 1.4 mm (.039" - .055")
Siphon Feed	1.0 mm – 1.4 mm (.039" - .055")
Gravity Feed	1.2 mm – 1.6 mm (.047" - .063")

Fluid Delivery

Conventional	8 – 12 ozs/min
HVLP	8 – 12 ozs/min

Air Pressure

Conventional	50 – 60 psi atomizing air
HVLP	25 – 30 psi atomizing air

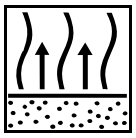


Environmental Conditions

Substrate and ambient temperature must be between 50°F (10°C) and 110°F (43°C). The substrate must be at least 5°F (3°C) above the dew point. Relative humidity should be below 90%.
Heating activated material above 110°F (43°C) may cause gelation.

Application

Apply using a cross-coat technique. Spray a wet first coat using a top-to-bottom motion. Spray a medium-wet second coat using a side-to-side motion. No flash is required between coats. Apply to a maximum dry-film thickness of 2.5 mils (approximately 5 mils wet).



Dry Times

Force Dry 60 minutes at 130°F (54°C) with 2 oz DuPont™ 13803S™ per ready-to-spray gallon	
Flash Before Force Dry	15 minutes
Dry to Touch	1 -2 hours
Dry to Tape	3 - 4 hours
Air Dry at 70°F (21°C) with 2 oz DuPont™ 13803S™ per ready-to-spray gallon	
Dry to Touch	3 – 4 hours
Dry to Tape	3 - 4 hours
Dry to Topcoat	2 hours
Dry to Sand	8 hours

Recoat

When recoating 373P29950™ with itself or Imron® Topcoats, scuff sanding is required if the topcoat has air dried for more than 48 hours or if the topcoat has been force dried.

Cleanup Solvents

DuPont™ 107™ Low-VOC Gun & Equipment Cleaner
DuPont™ 13920S™ Low-VOC Cleaner

Physical Properties

VOC	*Less Exempts (LE)*	*As Packaged (AP)*
373P29950™	3.3 lbs/gal	2.9 lbs/gal
Ready-to-Spray 373P29950™	3.2 lbs/gal	2.9 lbs/gal

Factory-Packaged Primer

Color	Black
Closed Cup Flash Point	20°F – 73°F
Shelf Life	2 years (Unopened at 50° – 110°F)

Ready-to-Spray *with 2oz/gal 13803S™

Theoretical Coverage	813ft^2/gal average at 1 mil dry film thickness
Weight Solids	64.8%
Volume Solids	50.7%
Gallon Weight	9.75 lbs/gal

Dry Film

Gloss	Satin
Recommended Film Thickness	1.5-2.0 mil when used as a primer 1.8-2.5 mil when used as a topcoat

Coating Performance

Weatherability	Excellent	Humidity Resistance	Excellent
Acid and Alkali Resistance	Excellent	Solvent Resistance	Excellent
Flexibility	Excellent	Abrasion Resistance	Excellent

Safety and Handling

DuPont is committed to helping you develop and maintain a safe working environment. Carefully read the specific warnings and precautions printed on the labels and material safety data sheets (MSDS) of all DuPont products before handling and using. These products are for industrial use by trained professional painters only. Do not permit anyone in the painting area without protective equipment per product MSDS.

For industrial use only by professional, trained painters. Not for sale to or use by the general public. Before using, read and follow all label and MSDS precautions. If mixed with other components, mixture will have hazards of all components.

Ready to use paint materials containing isocyanates can cause irritation of the respiratory organs and hypersensitive reactions. Asthma sufferers, those with allergies and anyone with a history of respiratory complaints must not be asked to work with products containing isocyanates.

Do not sand, flame cut, braze or weld dry coating without a NIOSH approved air purifying respirator with particulate filters or appropriate ventilation, and gloves.

Revised 8/2011

****** SECTION 1 - Product and Company Identification ******

Manufacturer: E.I. DuPont de Nemours & Co
Dupont Performance Coatings
Wilmington, DE, 19898

Telephone Product Information: (800) 441-7515
Medical Emergency: (800) 441-3637
Transportation Emergency (800) 424-9300 (CHEMTREC)

PRODUCT NAME: Polyurethane Activator

PRODUCT CODE: 13100 S 110506

Chemical Family: No Information Available

****** SECTION 2 - Composition, Information on Ingredients ******

CAS #	Ingredient	Concentration/ Range (%)	Exposure Limits**	
822-06-0	1,6-HEXAMETHYLENE DIISOCYANATE	0 1	A	5.0 ppb
			O	None
28182-81-2	ALIPHATIC POLYISOCYANATE-RESIN	71- 81	S	0.5 mg/m3
			A	None
			O	None
123-86-4	BUTYL ACETATE	5- 15	A	200.0 ppm 15 min STEL
			A	150 0 ppm
			O	150.0 ppm
141-78-6	ETHYL ACETATE	5- 15	A	400.0 ppm
			O	400.0 ppm
103-09-3	2-ETHYLHEXYL ACETATE	1- 4	A	None
			O	None

OSHA HAZARDOUS? Yes

** A = ACGIH, O = OSHA, D = Dupont, S = Supplier (For additional definition of terms, see Section 16). Limits are 8-hour TWA unless otherwise specified.

****** SECTION 3 - Hazards Information ******

Emergency Overview:

****** SECTION 3 - Hazards Information ******
Cont'd

DANGER! EXPOSURE MAY CAUSE LUNG INJURY AND ALLERGIC RESPIRATORY REACTION. EFFECTS MAY BE PERMANENT. FLAMMABLE LIQUID AND VAPOR VAPORS AND SPRAY MIST HARMFUL IF INHALED. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS SUCH AS DIZZINESS, HEADACHE, OR NAUSEA. MAY CAUSE NOSE, THROAT, EYE AND SKIN IRRITATION. CAN BE ABSORBED THROUGH THE SKIN.

Potential Health Effects:
Inhalation:
Exposure to isocyanates may cause respiratory sensitization. This effect may be permanent. Symptoms include an asthma-like reaction with shortness of breath, wheezing, cough or permanent lung sensitization. This effect may be delayed for several hours after exposure. Repeated overexposure to isocyanates may cause a decrease in lung function, which may be permanent. Individuals with lung or breathing problems or prior reactions to isocyanates must not be exposed to vapors or spray mist of this product.

May cause nose and throat irritation. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.
Ingestion:
May result in gastrointestinal distress.
Skin or eye contact:
May cause irritation or burning of the eyes. Repeated or prolonged liquid contact may cause skin irritation with discomfort and dermatitis.

Other Potential Health Effects in addition to those listed above:

1,6-HEXAMETHYLENE DIISOCYANATE
Overexposure may cause asthma-like reactions with shortness of breath, wheezing, cough, which may be permanent; or permanent lung sensitization. This effect may be delayed for several hours after exposure.
The following medical conditions may be aggravated by exposure:
asthma skin disorders respiratory disorders
Overexposure may cause damage to any of the following organs/systems: lungs skin
Potential skin sensitizer that may cause allergic reactions and contact dermatitis resulting in severe irritation, dryness, and cracking of the skin.

ALIPHATIC POLYISOCYANATE RESIN
Overexposure may cause asthma-like reactions with shortness of breath, wheezing, cough, which may be permanent; or permanent lung sensitization. This effect may be delayed for several hours after

****** SECTION 3 - Hazards Information ******
Cont'd

exposure.
The following medical conditions may be aggravated by exposure:
asthma skin disorders respiratory disorders
Potential skin sensitizer that may cause allergic reactions and contact dermatitis resulting in severe irritation, dryness, and cracking of the skin.

BUTYL ACETATE
May cause abnormal liver function.
The following medical conditions may be aggravated by exposure:
respiratory system
Tests for embryotoxic activity in animals has been inconclusive
Rats exposed to very high airborne levels have exhibited high frequency hearing deficits. The significance of this to man is unknown.
Has been toxic to the fetus in laboratory animals at doses that are toxic to the mother.

ETHYL ACETATE
Increased susceptibility to the effects of this material may be observed in people with preexisting disease of any of the following:
eyes respiratory system skin
Tests in laboratory animals have shown effects on any of the following organs/systems: blood kidneys liver

NOTE:
If a chemical listed above is not identified as a carcinogen it is not an "IARC, NTP, or OSHA carcinogen".

****** SECTION 4 - First Aid Measures ******

First Aid Procedures:
Inhalation:
If affected by inhalation of vapor or spray mist, move to fresh air. If not breathing, give artificial respiration, preferably mouth to-mouth. If breathing difficulty persists, or occurs later, consult a physician.
Ingestion:
In the unlikely event of ingestion, DO NOT INDUCE VOMITING. Call a physician immediately and have names of ingredients available.
Skin or eye:
In case of eye contact, immediately flush with plenty of water for at least 15 minutes; call a physician. In case of skin contact, wash thoroughly with soap and water. If irritation occurs, contact a physician.

****** SECTION 5 - Firefighting Measures ******

Flash Point (Method) 20 deg F to below 73 deg F Closed Cup

****** SECTION 5 - Firefighting Measures ******
Cont'd

Approx. flammable limits LFL 1.2 % UFL 11 0 %
Auto ignition temperature 407.0 - 427.0 Deg C
Hazardous Combustion Products.
CO, C02, smoke, and oxides of any heavy metals that are reported in "Composition, Information on Ingredients" section
Extinguishing media:
Universal aqueous film-forming foam, carbon dioxide, dry chemical.
Special fire fighting procedures:
Full protective equipment, including self-contained breathing apparatus, is recommended. Water from fog nozzles may be used to prevent pressure build-up.
Fire & explosion hazards:
Flammable liquid. Vapor/air mixture will burn when an ignition source is present.

****** SECTION 6 - Accidental Release Measures ******

Procedures for cleaning up spills or leaks:
Ventilate area. Remove sources of ignition. Do not breathe vapors. Do not get in eyes or on skin.

Wear a positive-pressure, supplied-air respirator (NIOSH approved TC-19C), eye protection, gloves and protective clothing. Pour liquid decontamination solution over the spill and allow to sit at least 10 minutes. Typical decontamination solutions for isocyanate containing materials are: 20% Surfactant (Tergitol TM 10) and 80% Water OR
0-10% Ammonia, 2-5% Detergent and Water (balance) Confine and remove with inert absorbent. Pressure can be generated. Do not seal waste containers for 48 hours to allow C02 to vent. After 48 hours, material may be sealed and disposed of properly.

****** SECTION 7 - Handling and Storage ******

Precautions to be taken in handling and storing:
Observe label precautions Keep away from heat, sparks, flame, static discharge and other sources of ignition. VAPORS MAY CAUSE FLASH FIRE.
Close container after each use. Ground containers when pouring. Do not transfer contents to bottles or unlabeled containers. Wash thoroughly after handling and before eating or smoking. Do not store above 120 deg F.
OSHA/NFPA Storage Classification: IB
Other precautions:
If material is a coating: do not sand, flame cut, braze or weld dry coating without a NIOSH approved air purifying respirator with particulate filters or appropriate ventilation , and gloves.

****** SECTION 8 - Exposure Controls or Personal Protection ******

Engineering controls and work practices:

****** SECTION 8 - Exposure Controls or Personal Protection ******
Cont'd

Ventilation:
Provide sufficient ventilation in volume and pattern to keep contaminants below applicable exposure limits

Personal Protective Equipment·
Personal protective equipment should be worn to prevent contact with eyes, skin or clothing.

Respiratory:
Do not breathe vapors or mists. Wear a positive-pressure, supplied air respirator (NIOSH approved TC-19C), while mixing activator with paint, during application and until all vapors and spray mists are exhausted. Follow respirator manufacturer s directions for respirator use. Do not permit anyone without protection in the painting area. Refer to the hardener/activator label instructions for further information. Individuals with history of lung or breathing problems or prior reaction to isocyanates should not use or be exposed to vapor or spray mist.

Protective clothing:
Neoprene gloves and coveralls are recommended.

Eye protection:
Desirable in all industrial situations. Goggles are preferred to prevent eye irritation If safety glasses are substituted, include splash guard or side shields

****** SECTION 9 - Physical and Chemical Properties ******

Evaporation Rate	Slower than Ether
Vapor Pressure of principal solvent	93.20 mmHg @ 25 Deg C
Solubility of solvent in water	NIL
Vapor density of principal solvent (Air = 1)	3.00
Approx. Boiling range	77 - 126 DEG (C)
Approx. Freezing range	-84 DEG (C)
Gallon weight (lbs/gal)	8.98
Specific gravity	1.08
Percent volatile by volume	30.22
Percent volatile by weight	25.00
Percent solids by volume	69.78
Percent solids by weight	75.00
Odor	Characteristic Paint Odor
Appearance	Semi-viscous liquid
Physical state	Liquid
pH (waterborne systems only)	Not Applicable
VOC* less exempt (lbs/gal)	2.2
VOC* as packaged (lbs/gal)	2.2

* VOC less exempt (theoretical) and VOC as packaged (theoretical) are based upon the VOC of the packaged material at the point of manufacture.

****** SECTION 10 Stability and Reactivity ******

Stability:
Stable
Incompatibility (materials to avoid):
water, alcohols, amines
Hazardous decomposition products.
CO, C02, smoke, and oxides of any heavy metals that are reported in "Composition, Information on Ingredients" section.
Hazardous polymerization:
Will not occur
Sensitivity to static discharge.
Solvent vapors in air may explode if static grounding and bonding is not used during transfer of this product.
Sensitivity to mechanical impact: None Known

****** SECTION 11 - Toxicological Information ******

No Information Available

****** SECTION 12 - Ecological Information ******

No Information Available

****** SECTION 13 - Disposal Considerations ******

Waste disposal method:
Do not allow material to contaminate ground water systems. Incinerate or otherwise dispose of waste material in accordance with Federal, State, Provincial, and local requirements. Do not incinerate in closed containers.

****** SECTION 14 - Transportation Information ******

No Information Available

****** SECTION 15 - Regulatory Information ******

TSCA Status:
In compliance with TSCA Inventory requirements for commercial purposes.
DSL Status:
All components of the mixture are listed on the DSL.

Photochemical Reactivity: Non-photochemically reactive

Other Regulatory Information:

CAS #	Ingredient	302	TPQ/RQ	EPCRA 311/312	313	CERCLA RQ(lbs)	HAP
822-06-0	1,6-HEXAMETHYLENE DIISOCYANATE	N	NR	C	Y	100	Y

****** SECTION 15 - Regulatory Information ******
Cont'd

28182-81-2	ALIPHATIC POLYISOCYANATE-RESIN	N	NR	A,C,R	N	NR	N
123-86-4	BUTYL ACETATE	N	NR	A,C,F	N	NR	N
141-78-6	ETHYL ACETATE	N	NR	C,F	N	NR	N
103-09-3	2-ETHYLHEXYL ACETATE	N	NR	A,F	N	NR	N

Key:
EPCRA Emergency Planning and Community Right-to-Know Act (aka Title III, SARA)
302: Extremely hazardous substances
311/312 Categories: F = Fire Hazard A = Acute Hazard
R = Reactivity Hazard C = Chronic Hazard
P = Pressure Related Hazard
313 Information: Section 313 Supplier Notification - The chemicals listed above with a 'Y' in the 313 column are subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know act of 1986 and of 40 CFR 372.
CERCLA Comprehensive Emergency Response, Compensation and Liability Act of 1980.
HAP = Listed as a Clean Air Act Hazardous Air Pollutant
TPQ = Threshold planning quantity
RQ = Reportable quantity
NA = not available
NR = not regulated

****** SECTION 16 - Additional Information ******

HMIS Rating: H: 2 F: 3 R: 1

Glossary of Terms:
ACGIH - American Conference of Governmental Industrial Hygienists
IARC - International Agency for Research on Cancer
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
STEL - Short term exposure limit
TWA - Time-weighted average
PNOR - Particles not otherwise regulated
PNOC - Particles not otherwise classified

NOTICE FROM DUPONT

The data in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or any process.

MSDS prepared by:
Performance Coatings Regulatory Affairs Consultant.

R7991-1OZ, CA7422 PRIMER, 3-PART

PPG Aerospace
PRC-DeSoto

Desoprime™ HS CA7422 Chrome-Free Epoxy Primer

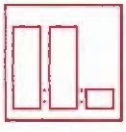
TECHNICAL DATA SHEET

Product Description

Desoprime™ HS CA7422 chrome-free epoxy primer is a high solids coating. Used on aircraft exterior and components including aluminum and composite surfaces.

- Compatible with Desothane® HS topcoats
- Excellent adhesion and corrosion resistance
- Excellent Skydrol® resistance
- Service temperature -54°C to 177°C (-65°F to 350°F)

Components



Mix ratio (by volume):

• CA7422A (base component)	4 parts
• CA7422B (activator component)	4 parts
• CA7422C (thinner component)	1 part

Specifications

CA7422 primer passes the requirements of the following specifications:

- BAMS 565-008
- BMS 10-60 Type I & Type II
- BMS 10-72 Type VIII
- BMS 10-79 Type II & Type III
- BMS 10-125 Type III
- MEP 10-068

Note: PPG Aerospace recommends you check the most recent specification QPLs for updated information.

Product Compatibility:

CA7422 primer is compatible with the following topcoat specifications:

- AIMS 04-04-013
- BAMS 565-09
- BMS 10-60 Type I & Type II
- BMS 10-72 Type VIII
- DMS 2115
- DMS 2143
- DPM 6456
- DPM 6546
- MEP 10-069
- MIL-PRF-85285

Surface Preparation and Pretreatments

CA7422 can be applied over aluminum substrates with DesoGel™ EAP-9, DesoGel™ EAP-12, MIL-C-5541, or chromic acid anodized pretreatments.

PPG Aerospace
PRC-DeSoto

Desoprime™ HS CA7422 Chrome-Free Epoxy Primer

Instructions for Use

Mixing Instructions:

Prior to mixing, thoroughly shake the base component. The activator component should be stirred by hand before mixing. Add the activator to the base component and stir well. Then add the thinner component also under agitation. Maintain constant agitation for 10 minutes to ensure proper mixing.

Note: It is important to condition the paint for 24 hours prior to mixing by placing all materials in the shop or hangar, with ambient temperatures between 13° and 35°C (55° to 95°F). The minimum temperature of the paint components should be 13°C (55°F) prior to mixing.

Induction Time:

Primer induction time if used with CA8000		
Mixing Instructions	Mix components CA 7502A + CA 7502B + CA7502C (4:4:1 by volume)	
Temperature	13 - 20°C (55 - 68°F)	21 - 35°C (69 - 95°F)
Induction Time	2 hour	1 hour

Primer induction time if used with CA8800 or CA9000 Basecoat		
Mixing Instructions	Mix components CA 7502A + CA 7502B (4:4 by volume) Allow induction time then add CA 7502C (final mix ratio by volume 4:4:1)	
Temperature	13 - 28°C (55 - 84°F)	29 - 35°C (85 - 95°F)
Induction Time	1 hour	30 minutes

Viscosity: (23°C/73°F)

• #2 Signature Zahn cup	15 to 19 seconds
• #4 Ford cup	11 to 15 seconds
• ISO 3mm cup	31 to 50 seconds
• ISO 4mm cup	17 to 22 seconds
• BSB3 cup	24 to 30 seconds
• BSB4 cup	14 to 17 seconds
• AFNOR #2.5 cup	41 to 56 seconds
• AFNOR #4 cup	14 to 16 seconds

Note: Viscosities quoted are the typical ranges obtained when using specified mix ratio.

Desoprime™ HS CA7422 Chrome-Free Epoxy Primer

Pot Life:
4 hours @ 21 - 25°C (70 - 77°F)

Application Guidelines

Recommended Application conditions:

Temperature	15 - 30°C (59 - 86°F)
Relative Humidity	20 - 90%

Application:

Ground the aircraft and the application equipment before priming. Stir the primer slowly while the primer is being applied. The suggested film thickness is 20 to 30 microns (0.8 to 1.2 mils). This can be accomplished by one medium coat with a 50% overlap. After applying primer, a close inspection is recommended to ensure a continuous coating was applied. The primer will appear translucent. It should not be applied to full hide.

These application guidelines represent PPG's best advice in standard conditions. Some parameters will be influenced by environmental conditions, equipment settings, and other variables.

Theoretical Coverage:
18 square meters/liter at 25 microns dry film (722 square feet/gallon at 1 mil dry film)
Recommended dry film thickness; 20 to 30 microns (0.8 to 1.2 mils)

Dry Film Density:
1.76 grams/cubic centimeter (14.66 pounds/gallon)

Dry Film Weight:
44.0 grams/square meter at 25 microns dry film (0.009 pounds/square feet at 1 mil dry film)

Desoprime™ HS CA7422 Chrome-Free Epoxy Primer

Equipment:

CA7422 primer is compatible with all current forms of spray equipment.

Equipment Type	Tip Size	Pot Pressure	Atomization Pressure at the Cap
Electrostatic Air Spray Gun	1.2 mm or 1.5 mm	10 to 20 psi (0.69 to 1.4 bar)	45 to 60 psi (3.1 to 4.1 bar)
Electrostatic Air Assisted Airless Spray Gun	#611 or #613 (Graco Nomenclature)	700 to 1200 psi (48 to 82 bar)	40 to 60 psi (2.8 to 4.1 bar)
High Volume Low Pressure Spray Gun (HVLP)	1.0 mm to 1.4 mm	10 to 20 psi (0.69 to 1.4 bar)	10 psi maximum (0.69 bar)
Conventional Air Spray Gun	1.2 mm to 1.8 mm	10 to 20 psi (0.69 to 1.4 bar)	45 to 60 psi (3.1 to 4.1 bar)

Equipment Cleaning:

Clean spray equipment as soon as possible after use. Flush spray equipment with DeSoto® CN20, DeSoto® CN44, or Desoclean™ 45 high performance solvent cleaner.

Physical Properties (product)

Color: Gray

Gloss: Not Applicable

Dry Times	13 - 21°C (55 - 70°F)	22 - 28°C (71 - 84°F)	>29°C (>85°F)
Dust Free	1 ½ hours	1 hour	45 minutes
Dry to Tape	4 hours	3 hours	2 hours
Dry to Topcoat	3 - 72 hours	2 - 72 hours	1 ½ - 72 hours
Full Cure	7 days	7 days	7 days

Accelerated cure for dry hard:

Allow 30 minutes flash off at 24°C ± 3°C (75°F ± 10°F)
followed by 30 minutes at 49°C (120°F)

Desoprime™ HS CA7422 Chrome-Free Epoxy Primer

VOC

VOC (EPA method 24):

Mixed, ready for use VOC	350 grams/liter
Base Component	382 grams/liter
Activator Component	258 grams/liter
Thinner Component	0 grams/liter

Flash point closed cup:

Base Component	16°C (60°F)
Activator Component	-4°C (24°F)
Thinner component	-9°C (15°F)

Shelf Life:

24 months from date of manufacture for PRC-DeSoto Standard.

Note: Shelf life is provided for the original, unopened containers.

Note: The application and performance property values above are typical for the material, but not intended for use in specifications or for acceptance inspection criteria because of variations in testing methods, conditions and configurations.

Storage Recommendations

Inspect the condition of the container to ensure compliance. The material should be stored at temperatures between 5°C to 35°C (41°F to 95°F) to ensure shelf life.

Note: When procuring to a qualified material specification, follow those storage instructions.

Desoprime™ HS CA7422 Chrome-Free Epoxy Primer

Health Precautions

This product is safe to use and apply when recommended precautions are followed. Before using this product, read and understand the Safety Data Sheet (SDS), which provides information on health, physical and environmental hazards, handling precautions and first aid recommendations. An SDS is available on request. Avoid overexposure. Obtain medical care in case of extreme overexposure.

For industrial use only. Keep away from children.

Additional information can be found at: www.ppgaerospace.com

For sales and ordering information call the local PPG office at the numbers listed below:

Asia Pacific

ASC – Australia
Tel 61 (3) 9335 1557
Fax 61 (3) 9335 3490

ASC – Japan
Tel 81 561 35 5200
Fax 81 561 35 5201

ASC – South East Asia
Tel 65 6861 1119
Fax 65 6861 6162

ASC – Suzhou
Tel (86-512) 6661 5858
Fax (86-512) 6661 6868

ASC – Tianjin
Tel (86-022) 2482 8625
Fax (86-022) 2482 8600

Europe and Middle East

ASC – Central Europe
Tel 49 (40) 742 193 10
Fax 49 (40) 742 139 69

ASC – Middle East & India
Tel (971) 4 883 9666
Fax (971) 4 883 9665

ASC – North Europe
Tel 44 (0) 1388 770222
Fax 44 (0) 1388 770288

ASC – South Europe
Tel 33 (0) 235 53 43 71
Fax 33 (0) 235 53 54 44

Americas

1 (818) 362-6711 or 1-800-AEROMIX

PRC-DeSoto International, Inc.
12780 San Fernando Road
Sylmar, CA 91342
www.ppgaerospace.com

Issue Date: 11/14
Lit: 4176

Material Safety Data Sheet

Date of issue 17 December 2011
Version 2

1 . Product and company identification

Product name	:	CA 7422A DeSoto Std Desoprime Chrome Free Epoxy Primer Base
Code	:	#59043B
Supplier	:	PPG Aerospace PRC-DeSoto 12780 San Fernando Road Sylmar, CA 91342 Phone: 818 362 6711
Emergency telephone number	:	(412) 434-4515 (U.S.) (514) 645-1320 (Canada) 01-800-00-21-400 (Mexico)

2 . Hazards identification

Emergency overview : DANGER!

FLAMMABLE LIQUID AND VAPOR. CAUSES EYE AND SKIN BURNS. HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. SANDING AND GRINDING DUSTS MAY BE HARMFUL IF INHALED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

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 breathe vapor or mist. Do not swallow. Do not get in eyes or on skin or 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	:	Harmful if inhaled. Irritating to respiratory system. Can irritate eyes, nose, mouth and throat. May cause sensitization by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	:	May be harmful if swallowed. May cause burns to mouth, throat and stomach.
Skin	:	Corrosive to the skin. Causes burns. Harmful in contact with skin. May cause an allergic skin reaction.
Eyes	:	Corrosive to eyes. Causes burns.

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. This product contains crystalline silica which can cause lung cancer or silicosis. The risk of cancer depends on the duration and level of exposure to dust from sanding surfaces or mist from spray applications. Can form nitrosamines in the presence of certain organic materials and if heated.

Medical conditions aggravated by over-exposure : Pre-existing respiratory and skin disorders and disorders involving any other 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	%
butan-1-ol	71-36-3	10 - 30
Quartz (SiO2) (<10 microns)	14808-60-7	10 - 30
barium sulfate	7727-43-7	10 - 30
titanium dioxide	13463-67-7	5 - 10
magnesium oxide	1309-48-4	5 - 10
benzyl alcohol	100-51-6	1 - 5
xylene	1330-20-7	1 - 5
Aliphatic Amine	Not available	1 - 5
Silica, amorphous, precipitated and gel	112926-00-8	1 - 5
m-phenylenebis(methylamine)	1477-55-0	1 - 5
ethylbenzene	100-41-4	0.1 - 1
3,6-diazaoctanethylenediamin	112-24-3	0.1 - 1

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 : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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
nitrogen oxides
sulfur oxides
metal oxide/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. Do not breathe 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).

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. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not breathe vapor or mist. Do not swallow. Do not get in eyes or on skin or clothing. 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

8. Exposure controls/personal protection

butan-1-ol	TWA	20 ppm	100 ppm	20 ppm	Not established	Not established
	STEL	Not established	Not established	Not established	50 ppm S C	Not established
Quartz (SiO2) (<10 microns)	TWA	0.025 mg/m³ R	10 mg/m³ R Z 30 mg/m³ TD Z 250 mppcf R Z	0.1 mg/m³ R	0.1 mg/m³ R	Not established
barium sulfate	TWA	10 mg/m³	5 mg/m³ R 15 mg/m³ TD	10 mg/m³ TD	Not established	Not established
titanium dioxide	TWA	10 mg/m³	15 mg/m³ TD	10 mg/m³ TD	10 mg/m³ (as Ti)	Not established
	STEL	Not established	Not established	Not established	20 mg/m³ (as Ti)	Not established
magnesium oxide	TWA	10 mg/m³	15 mg/m³	10 mg/m³	10 mg/m³ (as Mg)	Not established
benzyl alcohol	TWA	Not established	Not established	Not established	Not established	10 ppm
xylene	TWA	100 ppm	100 ppm	100 ppm	100 ppm	Not established
	STEL	150 ppm	Not established	150 ppm	150 ppm	Not established
Silica, amorphous, precipitated and gel	TWA	Not established	Not established	10 mg/m³	10 mg/m³	Not established
m-phenylenebis(methylamine)	STEL	0.1 mg/m³ S C	Not established	0.1 mg/m³ S C	0.1 mg/m³ S C	Not established
ethylbenzene	TWA	20 ppm	100 ppm	100 ppm	100 ppm	Not established
	STEL	Not established	Not established	125 ppm	125 ppm	Not established
3,6-diazaoctanethylenediamin	TWA	Not established	Not established	0.5 ppm S	Not established	1 ppm S

Key to abbreviations

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

8 . Exposure controls/personal protection

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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes	: Chemical splash goggles and face shield.
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.
Gloves	: nitrile, neoprene
Respiratory	: By spraying: air-fed respirator. By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask. 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.
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: 15.56°C (60°F)
Material supports combustion.	: Yes.
Color	: Gray.
Odor	: Not available.
pH	: Not available.
Boiling/condensation point	: >37.78°C (>100°F)
Melting/freezing point	: Not available.
Specific gravity	: 1.48
Density (lbs / gal)	: 12.35
Vapor pressure	: Not available.
Vapor density	: Not available.
Evaporation rate	: Not available.
VOC	: Not available.
Solubility	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	: Not available.
% Solid. (w/w)	: 74.68

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.,acids,oxidizing materials,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
butan-1-ol	LD50 Oral	Rat	0.79 g/kg	-
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LC50 Inhalation Vapor	Rat	8000 ppm	4 hours
titanium dioxide	LD50 Oral	Rat	>10 g/kg	-
benzyl alcohol	LD50 Oral	Rat	1.23 g/kg	-
	LD50 Dermal	Rabbit	2000 mg/kg	-
xylene	LD50 Oral	Rat	4.3 g/kg	-
	LD50 Dermal	Rabbit	>1.7 g/kg	-
	LC50 Inhalation Vapor	Rat	5000 ppm	4 hours
Aliphatic Amine	LD50 Oral	Rat	1.23 g/kg	-
	LD50 Dermal	Rabbit	>2 g/kg	-
m-phenylenebis(methylamine)	LD50 Oral	Rat	930 mg/kg	-
	LD50 Dermal	Rabbit	2 g/kg	-
	LC50 Inhalation	Rat	700 ppm	1 hours
ethylbenzene	LD50 Oral	Rat	3.5 g/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LC50 Inhalation Vapor	Rat	4000 ppm	4 hours
3,6-diazaoctanethylenediamin	LD50 Oral	Rat	2500 mg/kg	-
	LD50 Dermal	Rabbit	805 mg/kg	-

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: blood, kidneys, liver, heart, spleen, brain, bone marrow, central nervous system (CNS).
Contains material which may cause damage to the following organs: lungs, the nervous system, mucous membranes, gastrointestinal tract, upper respiratory tract, skin, ears, eye, lens or cornea, testes.

Carcinogenicity

Carcinogenicity : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Quartz (SiO2) (<10 microns)	A2	1	-	+	Proven.	-
titanium dioxide	A4	2B	-	+	-	-
magnesium oxide	A4	-	-	-	-	-
xylene	A4	3	-	-	-	-
ethylbenzene	A3	2B	-	-	-	-

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
butan-1-ol	Acute LC50 100 to 500 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute EC50 1983000 to 2072000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
barium sulfate	Acute EC50 32000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
titanium dioxide	Acute EC50 >1000000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
benzyl alcohol	Acute LC50 10000 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
xylene	Acute LC50 3300 to 4093 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
ethylbenzene	Acute LC50 4200 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 5100 to 5700 ug/L Marine water	Fish - Atlantic silverside - Menidia menidia	96 hours
	Acute EC50 2930 to 4400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Chronic NOEC 3300 ug/L Marine water	Fish - Atlantic silverside - Menidia menidia	96 hours
	Chronic NOEC 6800 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
3,6-diazaoctanethylenediamin	Acute LC50 33900 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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

Regulation	UN number	Proper shipping name	Classes	PG*	Additional information
UN	1263	PAINT	3	II	-
IMDG	1263	PAINT	3	II	-
DOT	1263	PAINT	3	II	-

PG* : Packing group

Reportable quantity RQ : CERCLA: Hazardous substances.: butan-1-ol: 5000 lbs. (2270 kg); ethylbenzene: 1000 lbs. (454 kg); xylene: 100 lbs. (45.4 kg);

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

United States

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: butan-1-ol; m-phenylenebis(methylamine); benzyl alcohol; xylene; titanium dioxide; barium sulfate; Quartz (SiO2) (<10 microns); magnesium oxide
CERCLA: Hazardous substances.: butan-1-ol: 5000 lbs. (2270 kg); ethylbenzene: 1000 lbs. (454 kg); xylene: 100 lbs. (45.4 kg);

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

Chemical name	CAS #	Acute	Chronic	Fire	Reactive	Pressure
butan-1-ol	71-36-3	Y	N	Y	N	N
Quartz (SiO2) (<10 microns)	14808-60-7	N	Y	N	N	N
barium sulfate	7727-43-7	N	N	N	N	N
titanium dioxide	13463-67-7	N	Y	N	N	N
magnesium oxide	1309-48-4	N	N	N	N	N
benzyl alcohol	100-51-6	Y	N	N	N	N
xylene	1330-20-7	Y	N	Y	N	N
Aliphatic Amine	Not available.	Y	N	N	Y	N
m-phenylenebis(methylamine)	1477-55-0	Y	N	N	N	N
ethylbenzene	100-41-4	Y	Y	Y	N	N
3,6-diazaoctanethylenediamin	112-24-3	Y	N	N	N	N
Product as-supplied :		Y	Y	Y	N	N

SARA 313
Supplier notification

Chemical name	CAS number	Concentration
butan-1-ol	71-36-3	10 - 30
xylene	1330-20-7	1 - 5
ethylbenzene	100-41-4	0.1 - 1

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 cancer.

Canada

15 . Regulatory information

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). Class E: Corrosive liquid. Class D-1B: Material causing immediate and serious toxic effects (Toxic). Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).

Mexico

Classification

Flammability : 3 Health : 3 Reactivity : 0

16 . Other information

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

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

Date of previous issue : 11/17/2011.

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.

Material Safety Data Sheet

Date of issue 12 December 2011
Version 1

1. Product and company identification

Product name : CA 7422B ACTIVATOR COMPONENT
Code : CA 7422B ACTIVATOR COMPONENT
Supplier : PPG Aerospace PRC-DeSoto
12780 San Fernando Road
Sylmar, CA 91342
Phone: 818 362 6711

Emergency telephone number : (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 (Mexico)

2. Hazards identification

Emergency overview : DANGER!

FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF INHALED, ABSORBED THROUGH SKIN 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. Do not get on skin or clothing. Avoid breathing vapor or mist. Avoid contact with eyes. 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 : Harmful in contact with skin. Irritating to skin. May cause an allergic skin reaction.
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 skin disorders and disorders involving any other 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	%
PARACHLOROBENZOTRIFLUORIDE	98-56-6	30 - 60
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	25068-38-6	10 - 30
xylene	1330-20-7	5 - 10
Epoxy Resin (MW<=700)	25068-38-6	1 - 5
NJTS 80100337-5010	Proprietary	1 - 5
ethylbenzene	100-41-4	1 - 5

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. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

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

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).

6 . Accidental release measures

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). Water polluting material. May be harmful to the environment if released in large quantities.

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. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not swallow. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Avoid release to the environment. 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
PARACHLOROBENZOTRIFLUORIDE	TWA	Not established	Not established	Not established	Not established	25 ppm
xylene	TWA	100 ppm	100 ppm	100 ppm	100 ppm	Not established
	STEL	150 ppm	Not established	150 ppm	150 ppm	Not established
ethylbenzene	TWA	20 ppm	100 ppm	100 ppm	100 ppm	Not

8 . Exposure controls/personal protection

	STEL	Not established	Not established	125 ppm	125 ppm	established Not established

Key to abbreviations

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

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. Contaminated work clothing should not be allowed out of the workplace. 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.

Gloves : butyl rubber

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.

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: -4.44°C (24°F)

Material supports combustion. : Yes.

Color : Amber.

Odor : Not available.

pH : Not available.

Boiling/condensation point : >37.78°C (>100°F)

Melting/freezing point : Not available.

Specific gravity : 1.2

9 . Physical and chemical properties

Density (lbs / gal)	:	10.01
Vapor pressure	:	Not available.
Vapor density	:	Not available.
Evaporation rate	:	Not available.
VOC	:	Not available.
Solubility	:	Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	:	Not available.
% Solid. (w/w)	:	33.8

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
PARACHLOROBENZOTRIFLUORIDE	LD50 Oral	Rat	13 g/kg	-
	LD50 Dermal	Rabbit	>2.7 g/kg	-
	LC50 Inhalation Vapor	Rat	33080 mg/m3	4 hours
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	LD50 Oral	Rat	>2 g/kg	-
	LD50 Dermal	Rabbit	>2 g/kg	-
xylene	LD50 Oral	Rat	4.3 g/kg	-
	LD50 Dermal	Rabbit	>1.7 g/kg	-
	LC50 Inhalation Vapor	Rat	5000 ppm	4 hours
Epoxy Resin (MW<=700)	LD50 Oral	Rat	>2 g/kg	-
	LD50 Dermal	Rabbit	>2 g/kg	-
NJTS 80100337-5010	LD50 Oral	Rat	5.19 g/kg	-
	LD50 Dermal	Rabbit	5170 mg/kg	-
ethylbenzene	LD50 Oral	Rat	3.5 g/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LC50 Inhalation Vapor	Rat	4000 ppm	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, central nervous system (CNS).
Contains material which may cause damage to the following organs: blood, kidneys, the nervous system, liver, gastrointestinal tract, upper respiratory tract, skin, eye, lens or cornea.

Carcinogenicity

11 . Toxicological information

Carcinogenicity : Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
xylene	A4	3	-	-	-	-
ethylbenzene	A3	2B	-	-	-	-

12 . Ecological information

Environmental effects : Water polluting material. May be harmful to the environment if released in large quantities.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
xylene	Acute LC50 3300 to 4093 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
ethylbenzene	Acute LC50 4200 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 5100 to 5700 ug/L Marine water	Fish - Atlantic silverside - Menidia menidia	96 hours
	Acute EC50 2930 to 4400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Chronic NOEC 3300 ug/L Marine water	Fish - Atlantic silverside - Menidia menidia	96 hours
	Chronic NOEC 6800 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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

Regulation	UN number	Proper shipping name	Classes	PG*	Additional information
UN	1263	PAINT	3	II	-
IMDG	1263	PAINT. Marine pollutant (reaction product: bisphenol-A-(epichlorhydrin); epoxy resin, Epoxy Resin (MW<=700))	3	II	-
DOT	1263	PAINT	3	II	-

PG* : Packing group

Reportable quantity RQ : CERCLA: Hazardous substances.: ethylbenzene: 1000 lbs. (454 kg); xylene: 100 lbs. (45.4 kg);

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

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: NJTS 80100337-5010; ethylbenzene; xylene
CERCLA: Hazardous substances.: ethylbenzene: 1000 lbs. (454 kg); xylene: 100 lbs. (45.4 kg);

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

Chemical name	CAS #	Acute	Chronic	Fire	Reactive	Pressure
PARACHLOROBENZOTRIFLUORIDE	98-56-6	Y	N	Y	N	N
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	25068-38-6	Y	N	N	N	N
xylene	1330-20-7	Y	N	Y	N	N
Epoxy Resin (MW<=700)	25068-38-6	Y	N	N	N	N
NJTS 80100337-5010	Proprietary	Y	N	N	Y	N
ethylbenzene	100-41-4	Y	Y	Y	N	N
Product as-supplied :		Y	Y	Y	N	N

SARA 313	Chemical name	CAS number	Concentration
Supplier notification	xylene	1330-20-7	5 - 10
	ethylbenzene	100-41-4	1 - 5

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 cancer.

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

15 . Regulatory information

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 : No previous validation.

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.

Material Safety Data Sheet

Date of issue 17 November 2011
Version 1

1. Product and company identification

Product name : CA 7422C DeSoto Std Desoprime Chrome Free Epoxy Primer Thinner
Code : #5980D
Supplier : PPG Aerospace PRC-DeSoto
12780 San Fernando Road
Sylmar, CA 91342
Phone: 818 362 6711
Emergency telephone number : (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 (Mexico)

2. Hazards identification

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT IRRITATION. MAY BE HARMFUL IF INHALED OR SWALLOWED. MAY CAUSE EYE IRRITATION. 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.
Skin : Moderately irritating to the skin.
Eyes : Moderately 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	%
PARACHLOROBENZOTRIFLUORIDE	98-56-6	40 - 70
acetone	67-64-1	15 - 40

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).

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. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. 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
PARACHLOROBENZOTRIFLUORIDE	TWA	Not established	Not established	Not established	Not established	25 ppm
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
F = Fume
IPEL = Internal Permissible Exposure Limit
OSHA = Occupational Safety and Health Administration.
R = Respirable
Z = OSHA 29CFR 1910.1200 Subpart Z - Toxic and Hazardous Substances
S = Potential skin absorption
SR = Respiratory sensitization
SS = Skin sensitization
STEL = Short term Exposure limit values
TD = Total dust
TLV = Threshold Limit Value
TWA = Time Weighted Average

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.

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

8 . Exposure controls/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.
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.
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: -9.44°C (15°F)
Material supports combustion.	: Yes.
Color	: Clear.
Odor	: Not available.
pH	: Not available.
Boiling/condensation point	: 56.11°C (133°F)
Melting/freezing point	: Not available.
Specific gravity	: 1.07
Density (lbs / gal)	: 8.93
Vapor pressure	: Not available.
Vapor density	: Not available.
Evaporation rate	: Not available.
VOC	: Not available.
Solubility	: Partially soluble in the following materials: cold water.
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
PARACHLOROBENZOTRIFLUORIDE	LD50 Oral	Rat	13 g/kg	-
	LD50 Dermal	Rabbit	>2.7 g/kg	-
	LC50 Inhalation Vapor	Rat	33080 mg/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, central nervous system (CNS).
Contains material which may cause damage to the following organs: blood, upper respiratory tract, skin, eye, lens or cornea.

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
acetone	A4	-	-	-	-	-

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
acetone	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 10000 ug/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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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.

13 . Disposal considerations

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

Regulation	UN number	Proper shipping name	Classes	PG*	Additional information
UN	1263	PAINT RELATED MATERIAL	3	II	-
IMDG	1263	PAINT RELATED MATERIAL	3	II	-
DOT	1263	PAINT RELATED MATERIAL	3	II	-

PG* : Packing group

Reportable quantity RQ : CERCLA: Hazardous substances.: acetone: 5000 lbs. (2270 kg);

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

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: acetone
CERCLA: Hazardous substances.: acetone: 5000 lbs. (2270 kg);

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

Chemical name	CAS #	Acute	Chronic	Fire	Reactive	Pressure
PARACHLOROBENZOTRIFLUORIDE	98-56-6	Y	N	Y	N	N
acetone	67-64-1	Y	N	Y	N	N
Product as-supplied :		Y	N	Y	N	N

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

Canada

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). 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

16 . Other information

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 : No previous validation.

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.

B270-9, ADHESIVE-EPOXY, 2OZ KIT

3M

Scotch-Weld™

Epoxy Adhesive

2216 B/A

Technical Data **December, 2009**

Product Description

3M™ Scotch-Weld™ Epoxy Adhesive 2216 B/A is a flexible, two-part, room temperature curing epoxy with high peel and shear strength. Scotch-Weld epoxy adhesive 2216 B/A is identical to 3M™ Scotch-Weld™ Epoxy Adhesive EC-2216 B/A in chemical composition. Scotch-Weld epoxy adhesive EC-2216 B/A has been labeled, packaged, tested, and certified for aircraft and aerospace applications. Scotch-Weld epoxy adhesive 2216 B/A may be used for aircraft and aerospace applications if proper Certificates of Test have been issued and material meets all aircraft manufacturer's specification requirements.

Typical Uncured Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Product	3M™ Scotch-Weld™ Epoxy Adhesive					
	2216 B/A Gray		2216 B/A Tan NS		2216 B/A Translucent	
	Base	Accelerator	Base	Accelerator	Base	Accelerator
Color:	White	Gray	White	Tan	Translucent	Amber
Base:	Modified Epoxy	Modified Amine	Modified Epoxy	Modified Amine	Modified Epoxy	Modified Amine
Net Wt.: (lb/gal)	11.1-11.6	10.5-11.0	11.1-11.6	10.5-11.0	9.4-9.8	8.0-8.5
Viscosity: (cps) (Approx.) Brookfield RVF #7 sp. @ 20 rpm	75,000 - 150,000	40,000 - 80,000	75,000 - 150,000	550,000 - 900,000	11,000 - 15,000	5,000 - 9,000
Mix Ratio: (by weight)	5 parts	7 parts	5 parts	7 parts	1 part	1 part
Mix Ratio: (by volume)	2 parts	3 parts	2 parts	3 parts	1 part	1 part
Work Life: 100 g Mass @ 75°F (24°C)	90 minutes	90 minutes	120 minutes	120 minutes	120 minutes	120 minutes

Features

- Excellent for bonding many metals, woods, plastics, rubbers, and masonry products.
- Base and Accelerator are contrasting colors.
- Good retention of strength after environmental aging.
- Resistant to extreme shock, vibration, and flexing.
- Excellent for cryogenic bonding applications.
- The tan NS Adhesive is non-sag for greater bondline control.
- The translucent can be injected.
- Meets DOD-A-82720.

3M™ Scotch-Weld™
Epoxy Adhesive
2216 B/A

Typical Cured Physical Properties

Product	3M™ Scotch-Weld™ Epoxy Adhesive		
	2216 Gray	2216 Tan NS	2216 Translucent
Color	Gray	Tan	Translucent
Shore D Hardness ASTM D 2240	50-65	65-70	35-50
Time to Handling Strength	8-12 hrs.	8-12 hrs.	12-16 hrs.

Typical Cured Electrical Properties

Product	3M™ Scotch-Weld™ Epoxy Adhesive	
	2216 Gray	2216 Translucent
Arc Resistance	130 seconds	
Dielectric Strength	408 volts/mil	630 volts/mil
Dielectric Constant @ 73°F (23°C)	5.51–Measured @ 1.00 KHz	6.3 @ 1 KHz
Dielectric Constant @ 140°F (60°C)	14.17–Measured @ 1.00 KHz	—
Dissipation Factor 73°F (23°C)	0.112 Measured @ 1.00 KHz	0.119 @ 1 KHz
Dissipation Factor 140°F (60°C)	0.422–Measured @ 1.00 KHz	—
Surface Resistivity @ 73°F (23°C)	5.5×10^{16} ohm–@ 500 volts DC	—
Volume Resistivity @ 73°F (23°C)	1.9×10^{12} ohm-cm–@ 500 volts DC	3.0×10^{12} ohm-cm @ 500 volts DC

Typical Cured Thermal Properties

Product	3M™ Scotch-Weld™ Epoxy Adhesive	
	2216 Gray	2216 Translucent
Thermal Conductivity	0.228 Btu-ft/ft²h°F	0.114 Btu-ft/ft²h°F
Coefficient of Thermal Expansion	102×10^{-6} in/in/°C between 0-40°C 134×10^{-6} in/in/°C between 40-80°C	81×10^{-6} in/in/°C between -50-0°C 207×10^{-6} in/in/°C between 60-150°C

Typical Cured Outgassing Properties

Outgassing Data
NASA 1124 Revision 4

	% TML	% CVCM	% Wtr
3M™ Scotch-Weld™ Epoxy Adhesive 2216 Gray	.77	.04	.23

Cured in air for 7 days @ 77°F (25°C).

Handling/Curing Information

Directions for Use

1. For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the required bond strength and the environmental aging resistance desired by user. For suggested surface preparations of common substrates, see the following section on surface preparation.
2. These products consist of two parts. Mix thoroughly by weight or volume in the proportions specified on the product label and in the uncured properties section. Mix approximately 15 seconds after a uniform color is obtained.

Handling/Curing Information *(continued)*

3. For maximum bond strength, apply product evenly to both surfaces to be joined.
4. Application to the substrates should be made within 90 minutes. Larger quantities and/or higher temperatures will reduce this working time.
5. Join the adhesive coated surfaces and allow to cure at 60°F (16°C) or above until firm. Heat, up to 200°F (93°C), will speed curing.
6. The following times and temperatures will result in a full cure:

Product	3M™ Scotch-Weld™ Epoxy Adhesive		
	2216 Gray	2216 Tan NS	2216 Translucent
Cure Temperature	Time	Time	Time
75°F (24°C)	7 days	7 days	30 days
150°F (66°C)	120 minutes	120 minutes	240 minutes
200°F (93°C)	30 minutes	30 minutes	60 minutes

7. Keep parts from moving until handling strength is reached. Contact pressure is necessary. Maximum shear strength is obtained with a 3-5 mil bond line. Maximum peel strength is obtained with a 17-25 mil bond line.
8. Excess uncured adhesive can be cleaned up with ketone type solvents.*****

Adhesive Coverage: A 0.005 in. thick bondline will typically yield a coverage of 320 sq. ft/gallon

Application and Equipment Suggestions

These products may be applied by spatula, trowel or flow equipment.

Two-part mixing/proportioning/dispensing equipment is available for intermittent or production line use. These systems are ideal because of their variable shot size and flow rate characteristics and are adaptable to many applications.

Surface Preparation

For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the required bond strength and the environmental aging resistance desired by user.

The following cleaning methods are suggested for common surfaces.

Steel or Aluminum (Mechanical Abrasion)

1. Wipe free of dust with oil-free solvent such as acetone or alcohol solvents.*****
2. Sandblast or abrade using clean fine grit abrasives (180 grit or finer).
3. Wipe again with solvents to remove loose particles.
4. If a primer is used, it should be applied within 4 hours after surface preparation.

*****When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use. Use solvents in accordance with local regulations.

Surface Preparation ***(continued)***

Aluminum (Chemical Etch)

Aluminum alloys may be chemically cleaned and etched as per ASTM D 2651. This procedure states to:

1. Alkaline Degrease – Oakite 164 solution (9-11 oz/gal of water) at 190°F ± 10°F (88°C ± 5°C) for 10-20 minutes. Rinse immediately in large quantities of cold running water.
2. **Optimized FPL Etch Solution (1 liter):**

Material	**Amount**
Distilled Water	700 ml plus balance of liter (see below)
Sodium Dichromate	28 to 67.3 grams
Sulfuric Acid	287.9 to 310.0 grams
Aluminum Chips	1.5 grams/liter of mixed solution

   To prepare 1 liter of this solution, dissolve sodium dichromate in 700 ml of distilled water. Add sulfuric acid and mix well. Add additional distilled water to fill to 1 liter. Heat mixed solution to 66 to 71°C (150 to 160°F). Dissolve 1.5 grams of 2024 bare aluminum chips per liter of mixed solution. Gentle agitation will help aluminum dissolve in about 24 hours.

   To etch aluminum panels, place them in FPL etch solution heated to 66 to 71°C (150 to 160°F). Panels should soak for 12 to 15 minutes.

3. Rinse: Rinse panels in clear running tap water.
4. Dry: Air dry 15 minutes; force dry 10 minutes (minimum) at 140°F (60°C) maximum.
5. If primer is to be used, it should be applied within 4 hours after surface preparation.

Plastics/Rubber

1. Wipe with isopropyl alcohol.*****
2. Abrade using fine grit abrasives (180 grit or finer).
3. Wipe with isopropyl alcohol.*****

Glass

1. Solvent wipe surface using acetone or MEK.*****
2. Apply a thin coating (0.0001 in. or less) of 3M™ Scotch-Weld™ Structural Adhesive Primer EC-3901 to the glass surfaces to be bonded and allow the primer to dry a minimum of 30 minutes @ 75°F (24°C) before bonding.

*****When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use. Use solvents in accordance with local regulations.

Typical Adhesive Performance Characteristics

A. Typical Shear Properties on Etched Aluminum
ASTM D 1002
Cure: 2 hours @ 150 ± 5°F (66°C ± 2°C), 2 psi pressure

Test Temperature	Overlap Shear (psi)		
	3M™ Scotch-Weld™ Epoxy Adhesive		
	2216 B/A Gray Adhesive	2216 B/A Tan NS Adhesive	2216 B/A Trans. Adhesive
-423°F (-253°C)	2440	—	—
-320°F (-196°C)	2740	—	—
-100°F (-73°C)	3000	—	—
-67°F (-53°C)	3000	2000	3000
75°F (24°C)	3200	2500	1700
180°F (82°C)	400	400	140

Test Temperature	Shear Modulus (Torsion Pendulum Method)
-148°F (-100°C)	398,000 psi (2745 MPa)
-76°F (-60°C)	318,855 psi (2199 MPa)
-40°F (-40°C)	282,315 psi (1947 MPa)
32°F (0°C)	218,805 psi (1500 MPa)
75°F (24°C)	49,580 psi (342 MPa)

B. Typical T-Peel Strength
ASTM D 1876

Test Temperature	T-Peel Strength (piw) @ 75°F (24°C)		
	3M™ Scotch-Weld™ Epoxy Adhesive		
	2216 B/A Gray Adhesive	2216 B/A Tan NS Adhesive	2216 B/A Trans. Adhesive
75°F (24°C)	25	25	25

Typical Adhesive Performance Characteristics (*continued*)

C. Overlap Shear Strength After Environmental Aging-Etched Aluminum

Environment	Time	Overlap Shear (psi) 75°F (24°C)		
		3M™ Scotch-Weld™ Epoxy Adhesive		
		2216 B/A Gray Adhesive	2216 B/A Tan NS Adhesive	2216 B/A Trans. Adhesive
100% Relative Humidity @ 120°F (49°C)	14 days 30 days 90 days	2950 psi 1985 psi 1505 psi	3400 psi 2650 psi	1390 psi
*Salt Spray @ 75°F (24°C)	14 days 30 days 60 days	2300 psi 500 psi 300 psi	3900 psi 3300 psi	1260 psi
Tap Water @ 75°F (24°C)	14 days 30 days 90 days	3120 psi 2942 psi 2075 psi	3250 psi 2700 psi	1950 psi
Air @ 160°F (71°C)	35 days	4650 psi	4425 psi	
Air @ 300°F (149°C)	40 days	4930 psi	4450 psi	3500 psi
Anti-icing Fluid @ 75°F (24°C)	7 days	3300 psi	3050 psi	2500 psi
Hydraulic Oil @ 75°F (24°C)	30 days	2500 psi	3500 psi	2500 psi
JP-4 Fuel	30 days	2500 psi	2750 psi	2500 psi
Hydrocarbon Fluid	7 days	3300 psi	3100 psi	3000 psi

*Substrate corrosion resulted in adhesive failure.

D. Heat Aging of 3M™ Scotch-Weld™ Epoxy Adhesive 2216 B/A Gray

(Cured for 7 days @ 75°F [24°C])

Overlap Shear (psi)	Time aged @ 300°F (149°C)			
Test Temperature	0 days	12 days	40 days	51 days
-67°F (-53°C)	2200	3310	3120	2860
75°F (24°C)	3100	5150	4930	4740
180°F (82°C)	500	1000	760	1120
350°F (177°C)	420	440	560	—

Typical Adhesive Performance Characteristics (*continued)*

E. Overlap Shear Strength on Abraded Metals, Plastics, and Rubbers.

Overlap shear strengths were measured on 1" x 1/2" overlap specimens. These bonds were made individually using 1" by 4" pieces of substrate (Tested per ASTM D 1002).

The thickness of the substrates were: cold rolled, galvanized and stainless steel – 0.056-0.062", copper – 0.032", brass – 0.036", rubbers – 0.125", plastics – 0.125". All surfaces were prepared by solvent wiping/abrading/ solvent wiping.

The jaw separation rate used for testing was 0.1 in/min for metals, 2 in/min for plastics, and 20 in/min for rubbers.

	Overlap Shear (psi) @ 75°F (24°C)	
	3M™ Scotch-Weld™ Epoxy Adhesive	
Substrate	**2216 B/A Gray Adhesive**	**2216 B/A Tan NS Adhesive**
Aluminum/Aluminum	1850	2350
Cold Rolled Steel/Cold Rolled Steel	1700	3100
Stainless Steel/Stainless Steel	1900	
Galvanized Steel/Galvanized Steel	1800	
Copper/Copper	1050	
Brass/Brass	850	
Styrene Butadiene Rubber/Steel	200*	
Neoprene Rubber/Steel	220*	
ABS/ABS Plastic	990*	1140*
PVC/PVC, Rigid	940*	
Polycarbonate/Polycarbonate	1170*	1730*
Acrylic/Acrylic	1100*	1110*
Fiber Reinforced Polyester/ Reinforced Polyester	1660*	1650*
Polyphenylene Oxide/PPO	610	610
PC/ABS Alloy / PC/ABS Alloy	1290	1290

*The substrate failed during the test.

Storage

Store products at 60-80°F (16-27°C) for maximum storage life.

Shelf Life

When stored at the recommended temperatures in the original, unopened containers, the shelf life is two years from date of shipment from 3M.

3M™ Scotch-Weld™
Epoxy Adhesive
2216 B/A

Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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ISO 9001:2000

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.

3M

Industrial Adhesives and Tapes Division
3M Center, Building 225-3S-06
St. Paul, MN 55144-1000
800-362-3550 • 877-369-2923 (Fax)
www.3M.com/industrial

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