



SAFETY DATA SHEET

Safety Data Sheet according to regulation (EC) No 1907/2006 & 1272/2008 and amendments

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

Product Identifier: BR® 127 Corrosion Inhibiting Primer, 10% Solids
Product Description: Epoxy/phenolic resins in 2-butanone and tetrahydrofuran

RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Intended/Recommended Use: Corrosion inhibiting primer

Supplied by:
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Coleshill, West Midlands
B46 1HG, UK
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DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Company: Cytec Industries Inc., Five Garret Mountain Plaza, Woodland Park, New Jersey 07424, USA.
For Product and all Non-Emergency Information call 1-800/652-6013. Outside the USA and Canada call +1-973/357-3193 or your local Cytec contact point. E-mail: custinfo@cytec.com

Local Contact Information: Cytec Industries Inc., Abenbury Way, Wrexham Industrial Estate, Wrexham Clwyd LL139UZ, GB
Telephone: +44 1-97866-5200

EMERGENCY PHONE (24 hours/day) - For emergency only involving spill, leak, fire, exposure or accident call:

Asia Pacific:

Australia - +61-3-9663-2130 or 1800-033-111 (IXOM)
China (PRC) - +86 0532 83889090 (NRCC)
New Guinea - +61-3-9663-2130 or 1800-033-111
New Zealand - +61-3-9663-2130 or 0800-734-607 (IXOM)
India, Japan, Korea, Malaysia, Thailand - +65 3158 1074 (Carechem24 Singapore)
India (Hindi Speaking Only) - +65 3158 1198 or 000800 100 7479 (Carechem24 Singapore)

Canada: +1-905-356-8310 (Cytec Welland, Canada plant)

Europe/Africa/Middle East (Carechem24 UK):

Europe, Middle East, Africa, Israel - +44 (0) 1235 239 670
(Arabic speaking countries) - +44 (0) 1235 239 671

Latin America:

Brazil - 0800 7077 022 (SUATRANS)
Chile - +56-2-2-247-3600 (CITUC QUIMICO)
All Others - +52-376-73 74122 (Cytec Atequiza, Mexico plant)

USA: +1-703-527-3887 or 1-800-424-9300 (CHEMTREC #CCN6083)

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2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification according to Regulation (EC) No 1272/2008 and amendments

2. HAZARDS IDENTIFICATION

Flammable Liquid Hazard Category 2

Carcinogenicity Hazard Category 1A

Germ Cell Mutagenicity Hazard Category 2

Specific Target Organ Toxicity (STOT) - Single Exposure Hazard Category 3

Serious Eye Damage / Eye Irritation Hazard Category 2

Skin Sensitizer Hazard Category 1

Aquatic Environment Long-term Hazard Category 3

LABEL ELEMENTS



Signal Word

Danger

Hazard Statements

H225 - Highly flammable liquid and vapour.

H350 - May cause cancer.

H341 - Suspected of causing genetic defects.

H336 - May cause drowsiness or dizziness.

H319 - Causes serious eye irritation.

H317 - May cause an allergic skin reaction.

H412 - Harmful to aquatic life with long lasting effects.

EUH019 - May form explosive peroxides.

EUH066 - Repeated exposure may cause skin dryness or cracking.

Precautionary Statements

Precautionary statements on the label will be reduced as indicated in Regulation (EC) No 1272/2008, Article 28.

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P201 - Obtain special instructions before use.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 - Use only outdoors or in a well-ventilated area.
P264 - Wash face, hands and any exposed skin thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P370 + P378 - In case of fire: Use CO₂, dry chemical, or foam to extinguish.
P308 + P313 - IF exposed or concerned: Get medical advice/attention.
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice/attention.
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention.
P321 - Specific treatment (see supplemental first aid instructions on this label).
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P403 + P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P501 - Dispose of contents/container in accordance with local and national regulations.

OTHER HAZARDS

Polymerisation may occur from excessive heat, contamination or exposure to direct sunlight.

RESULTS OF PBT AND vPvB ASSESSMENT

Not determined

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance, Mixture or Article? Mixture

Component / CAS No.	%	EC-No	REACH Registration Number	Classification according to Regulation (EC) No 1272/2008 (CLP)	M-Factor	SVHC
2-Butanone (Methyl ethyl ketone) 78-93-3	45-65	201-159-0	01-2119457290-43	Flam. Liq. 2 (H225) STOT SE 3 (H336) Eye Irrit. 2 (H319)		
Tetrahydrofuran 109-99-9	10-20	203-726-8	01-2119444314-46	Flam. Liq. 2 (H225) Carc. 2 (H351) Acute Tox. 4 (H302) STOT SE 3 (H335) Eye Irrit. 2 (H319)		
Diacetone alcohol 123-42-2	10-20	204-626-7	Not available	Eye Irrit. 2 (H319)		
Glycidyl Phenol/ Formaldehyde Polymer 28064-14-4	2-8	--	Not available	Skin Irrit. 2 (H315) Skin Sens. 1 (H317) Aquatic Chronic 2 (H411)		

Component / CAS No.	%	EC-No	REACH Registration Number	Classification according to Regulation (EC) No 1272/2008 (CLP)	M-Factor	SVHC
Bisphenol A based epoxy resin 25036-25-3	1-5	--	Not available	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) Aquatic Chronic 2 (H411)		
Strontium chromate 7789-06-2	1-5	232-142-6	01-2119548391-39	Carc. 1A (H350) Muta. 2 (H341) Repr. 2 (H361fd) Acute Tox. 4 (H302) Acute Tox. 2 (H330) STOT SE 3 (H335) Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	1	X
Phenol 108-95-2	0.1-0.25	203-632-7	01-2119471329-32	Muta. 2 (H341) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT RE 2 (H373) Skin Corr. 1B (H314) Aquatic Chronic 2 (H411)		
Formaldehyde 50-00-0	0.01-0.06	200-001-8	01-2119488953-20	Carc. 1B (H350) B D Muta. 2 (H341) Acute Tox. 3 (H301) B D Acute Tox. 3 (H311) B D Acute Tox. 3 (H331) B D Skin Corr. 1B (H314) B D Skin Sens. 1A (H317) B D		
Methanol 67-56-1	0.1-1	200-659-6	01-2119433307-44	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)		
2-Methylimidazole 693-98-1	<0.2	211-765-7	Not available	Carc. 2 (H351) Repr. 1B (H360FD) Acute Tox. 4 (H302) Skin Corr. 1B (H314)		

See Section 16 for full text of H phrases.

4. FIRST AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

Eye Contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical advice if there are persistent symptoms.

Skin Contact:

Wash immediately with plenty of water and soap. Remove contaminated clothing and shoes without delay. Obtain medical attention. Do not reuse contaminated clothing without laundering. Destroy or thoroughly clean shoes before reuse.

Ingestion:

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, the victim should lean forward to reduce the risk of aspiration.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

None known

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDS

Not applicable

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Suitable Extinguishing Media:

Use water spray, alcohol foam, carbon dioxide or dry chemical to extinguish fires. Water stream may be ineffective.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Keep containers cool by spraying with water if exposed to fire.

ADVICE FOR FIREFIGHTERS

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Where exposure level is known, wear approved respirator suitable for level of exposure. Where exposure level is not known, wear approved, positive pressure, self-contained respirator. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Environmental Precautions:

None known

Methods and material for containment and cleaning up:

Remove sources of ignition. Use non-sparking handtools. Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

References to other sections:

See Sections 8 and 13 for additional information.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Precautionary Measures: Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Special Handling Statements: Vapour pressure of organic liquids increases with temperature. Containers must be bonded and grounded when pouring or transferring material. Provide good ventilation of working area (local exhaust ventilation if necessary).

Conditions for safe storage, including any incompatibilities:

Areas containing this material should have fire safe practices and electrical equipment in accordance with applicable regulations and/or guidelines. Standards are primarily based on the material's flashpoint, but may also take into account properties such as miscibility with water or toxicity. All local and national regulations should be followed.

In the Americas, National Fire Protection Association (NFPA) 30: Flammable and Combustible Liquids Code, is a widely used standard. NFPA 30 establishes storage conditions for the following classes of materials: Class I Flammable Liquids, Flashpoint <37.8 °C. Class II Combustible Liquids, 37.8 °C < Flashpoint <60 °C. Class IIIa Combustible Liquids, 60 °C < Flashpoint < 93 °C. Class IIIb Combustible Liquids, Flashpoint > 93 °C. Containers filled with this product should be kept closed when not in use, as evaporation of water and solvent may cause gelation.

Storage Temperature: Store at ≤ -17.8 °C

Reason: Quality.

Storage Class (TRGS 510): 3

Specific end use(s):

Refer to Section 1 or Exposure Scenario if applicable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS

108-95-2 Phenol

United Kingdom: WEL (Workplace Exposure Limits)	2 ppm (TWA) 7.8 mg/m ³ (TWA) (skin) 4 ppm (STEL) 16 mg/m ³ (STEL)
Europe ILV (Indicative Limit Values):	Not established
Other Value:	Not established

109-99-9 Tetrahydrofuran

United Kingdom: WEL (Workplace Exposure Limits)	50 ppm (TWA) 150 mg/m ³ (TWA) (skin) 100 ppm (STEL) 300 mg/m ³ (STEL)
Europe ILV (Indicative Limit Values):	Not established
Other Value:	Not established

123-42-2 Diacetone alcohol

United Kingdom: WEL (Workplace Exposure Limits)	50 ppm (TWA) 241 mg/m ³ (TWA) 75 ppm (STEL) 362 mg/m ³ (STEL)
Europe ILV (Indicative Limit Values):	Not established
Other Value:	Not established

50-00-0 Formaldehyde

United Kingdom: WEL (Workplace Exposure Limits)	2 ppm (TWA) 2.5 mg/m ³ (TWA) 2 ppm (STEL) 2.5 mg/m ³ (STEL)
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108-95-2 Phenol

Europe ILV (Indicative Limit Values):

Not established

Other Value:

Not established

67-56-1 Methanol

United Kingdom: WEL (Workplace Exposure Limits)

200 ppm (TWA)
266 mg/m³ (TWA)
(skin)250 ppm (STEL)
333 mg/m³ (STEL)

Europe ILV (Indicative Limit Values):

200 ppm (TWA)
260 mg/m³ (TWA)
(skin)

Other Value:

Not established

7789-06-2 Strontium chromate

United Kingdom: WEL (Workplace Exposure Limits)

0.05 mg/m³ Cr (TWA)(as Chromium(VI) compounds)
0.15 mg/m³ Cr (STEL)(as Chromium(VI) compounds)

Europe ILV (Indicative Limit Values):

Not established

Other Value:

Not established

78-93-3 2-Butanone (Methyl ethyl ketone)

United Kingdom: WEL (Workplace Exposure Limits)

200 ppm (TWA)
600 mg/m³ (TWA)
(skin)
300 ppm (STEL)
899 mg/m³ (STEL)
70 µmol/L (urine) Butan-2-one (Health Guidance Value)
(EH40)

Europe ILV (Indicative Limit Values):

Not established

Other Value:

Not established

Derived No Effect Level (DNEL):

Use	Route	DNEL	Units	Effects Type
2-Butanone (Methyl ethyl ketone) (78-93-3)				
Worker	Dermal	1161	mg/kg/day	Long term, systemic
Worker	Inhalation	600	mg/m ³	Long term, systemic
Consumer	Dermal	412	mg/kg/day	Long term, systemic
Consumer	Inhalation	106	mg/m ³	Long term, systemic
Consumer	Oral	31	mg/kg/day	Long term, systemic
Diacetone alcohol (123-42-2)				
Worker	Inhalation	240	mg/m ³	Short term, local
Worker	Inhalation	66.4	mg/m ³	Long term, local
Worker	Dermal	9.4	mg/kg/day	Long term, systemic
Consumer	Inhalation	120	mg/m ³	Short term, local
Consumer	Inhalation	11.8	mg/m ³	Long term, local
Consumer	Inhalation	11.8	mg/m ³	Long term, systemic
Consumer	Oral	3.4	mg/kg/day	Long term, systemic
Consumer	Dermal	3.4	mg/kg/day	Long term, systemic
Worker	Inhalation	66.4	mg/m ³	Long term, systemic
Strontium chromate (7789-06-2)				
Worker	Dermal	0.2	µg/cm ²	Long term, systemic
Phenol (108-95-2)				
Worker	Inhalation	8	mg/m ³	Long term, systemic

Worker	Dermal	1.23	mg/kg/day	Long term, systemic
Worker	Inhalation	16	mg/m ³	Short term, local
General Population	Inhalation	1.32	mg/m ³	Long term, systemic
General Population	Dermal	0.4	mg/kg/day	Long term, systemic
General Population	Oral	0.4	mg/kg/day	Long term, systemic
Formaldehyde (50-00-0)				
Worker	Inhalation	9	mg/m ³	Long term, systemic
Worker	Inhalation	0.5	mg/m ³	Long term, local
Worker	Inhalation	1	mg/m ³	Short term, local
Worker	Dermal	240	mg/kg/day	Long term, systemic
Worker	Dermal	37	µg/cm ²	Long term, local
General Population	Inhalation	3.2	mg/m ³	Long term, systemic
General Population	Inhalation	0.1	mg/m ³	Long term, local
General Population	Dermal	102	mg/kg/day	Long term, systemic
General Population	Dermal	12	µg/cm ²	Long term, local
General Population	Oral	4.1	mg/kg/day	Long term, systemic
Methanol (67-56-1)				
Worker	Inhalation	260	mg/m ³	Short term, systemic
Worker	Inhalation	260	mg/m ³	Long term, systemic
Worker	Inhalation	260	mg/kg/day	Short term, local
Worker	Inhalation	260	mg/m ³	Long term, local
Worker	Dermal	40	mg/kg/day	Short term, systemic
Worker	Dermal	40	mg/kg/day	Long term, systemic
Consumer	Inhalation	50	mg/m ³	Short term, systemic
Consumer	Inhalation	50	mg/m ³	Long term, systemic
Consumer	Dermal	8	mg/kg/day	Short term, systemic
Consumer	Dermal	8	mg/kg/day	Long term, systemic
Consumer	Oral	8	mg/kg/day	Short term, systemic
Consumer	Oral	8	mg/kg/day	Long term, systemic
Consumer	Inhalation	50	mg/m ³	Long term, local
Consumer	Inhalation	50	mg/m ³	Short term, local
2-Methylimidazole (693-98-1)				
Worker	Inhalation	0.47	mg/m ³	Long term, systemic
Worker	Dermal	0.33	mg/kg/day	Long term, systemic

Predicted No Effect Concentration (PNEC):

Compartment	PNEC	Units
2-Butanone (Methyl ethyl ketone) (78-93-3)		
Fresh water	55.8	mg/L
Marine water	55.8	mg/L
Intermittent water release	55.8	mg/L
Sewage treatment plant	709	mg/L
Sediment (fresh water)	284.7	mg/kg
Soil	22.5	mg/kg
Sediment (marine water)	284.7	mg/kg
Diacetone alcohol (123-42-2)		
Fresh water	2	mg/L
Marine water	0.2	mg/L
Intermittent water release	1	mg/L
Sewage treatment plant	82	mg/L
Sediment (fresh water)	9.06	mg/kg
Sediment (marine water)	0.91	mg/kg
Soil	0.63	mg/kg

Strontium chromate (7789-06-2)

Fresh water	0.005	mg/L
Marine water	0.005	mg/L
Intermittent water release	0.005	mg/L
Sewage treatment plant	10	mg/L
Sediment (fresh water)	31	mg/kg (dry weight)
Sediment (marine water)	31	mg/kg (dry weight)
Soil	3.2	mg/kg (dry weight)

Phenol (108-95-2)

Fresh water	0.0077	mg/L
Marine water	0.00077	mg/L
Sediment (fresh water)	0.0915	mg/kg
Sediment (marine water)	0.00915	mg/kg
Soil	0.136	mg/kg
Intermittent water release	0.031	mg/L
Sewage treatment plant	2.1	mg/L

Formaldehyde (50-00-0)

Fresh water	0.47	mg/L
Marine water	0.47	mg/L
Sediment (fresh water)	2.44	mg/kg
Sediment (marine water)	2.44	mg/kg
Soil	0.21	mg/kg
Sewage treatment plant	0.19	mg/L
Intermittent water release	4.7	mg/L

Methanol (67-56-1)

Fresh water	154	mg/L
Marine water	15.4	mg/L
Intermittent water release	1540	mg/L
Sewage treatment plant	100	mg/L
Sediment	570.4	mg/kg
Soil	23.5	mg/L

2-Methylimidazole (693-98-1)

Fresh water	0.19	mg/L
Marine water	0.019	mg/L
Intermittent water release	19	mg/L
Sewage treatment plant	193	mg/L
Sediment (fresh water)	17.2	mg/kg (dry weight)
Sediment (marine water)	1.72	mg/kg (dry weight)
Soil	3.32	mg/kg (dry weight)

EXPOSURE CONTROLS**Engineering Measures:**

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure when spraying or curing at elevated temperatures.

Respiratory Protection:

Where exposures are below the established exposure limit, no respiratory protection is required.

Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

A full facepiece respirator also provides eye and face protection.

Cutting, grinding or sanding of parts fabricated after curing may create respirable dust particles. Respiratory protection appropriate for this dust may be required. Refer to components listed above for potential hazardous components in the dust.

Eye protection:

Wear eye/face protection such as chemical splash proof goggles or face shield.
Eyewash equipment and safety shower should be provided in areas of potential exposure.

Skin Protection:

Avoid skin contact.
Wear impermeable gloves and suitable protective clothing.
Barrier creams may be used in conjunction with the gloves to provide additional skin protection.
Since this product is absorbed through the skin, care must be taken to prevent skin contact and contamination of clothing.

Hand protection:

Nitrile or fluorinated rubber gloves. Consider the porosity and elasticity data of the glove manufacturer and the specific conditions in the work place. Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred. Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.

The chemical resistance depends on the type of product and amount of product on the glove. Therefore gloves need to be changed when in contact with chemicals.

Due to many conditions (e.g. temperature, abrasion) the practical usage of a chemical protective glove in practice may be much shorter than the permeation time determined through testing.

Additional Advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.
It is recommended that a shower be taken after completion of workshift especially if significant contact has occurred. Work clothing should then be laundered prior to reuse. Street clothing should be stored separately from work clothing and protective equipment. Work clothing and shoes should not be taken home.

9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Colour:	colorless to light-yellow or blue-green
Appearance:	suspension
Odor:	strong sweet
Odor Threshold:	See Section 8 for exposure limits.
pH:	Not available
Melting Point:	Not applicable
Boiling Point:	80 °C (value for methyl ethyl ketone)
Flash point:	-6.1 °C Tag closed cupValue for MEK
Evaporation Rate:	3.3 - 6.6(n-Butyl acetate = 1)(value for methyl ethyl ketone)
Flammability (solid, gas):	Not available
Flammable Limits (% By Vol):	Lower: 1.4 Upper: 11.4(values for methyl ethyl ketone)
Vapor Pressure:	82 - 83 mm Hg @ 23.9 °C (value for methyl ethyl ketone)
Vapour density:	2.5 (air = 1)(value for methyl ethyl ketone)
Specific Gravity/Density:	0.88
Solubility In Water:	Not available
Partition coefficient (n-octanol/water):	Not available
Autoignition (Self) Temperature:	321.1 °C
Decomposition Temperature:	Not available
Viscosity (Kinematic):	Not available
Viscosity (Dynamic):	Not available

OTHER INFORMATION

Fat Solubility (Solvent-Oil): Not available

Percent Volatile (% by wt.):	~90
Solids Content:	Not available
Saturation In Air (% By Vol.):	Not available
Acid Number (mg KOH/g):	Not available
Hydroxyl Value (mg KOH/g):	Not available
Volatile Organic Content (1999/13/EC):	780 - 800gm/L
Dissociation Constant:	Not available
Explosion Properties:	Not available
Oxidizing Properties:	Not available
Granulometry (Particle Size):	Not available

DUST HAZARD INFORMATION

Particle Size (microns):	Not applicable
Kst (bar-m/sec):	Not applicable
Maximum Explosion Pressure (Pmax):	Not applicable
Dust Class:	Not applicable
Minimum Ignition Energy (MIE) (mJ):	Not applicable
Minimum Ignition Temperature (MIT) (°C):	Not applicable
Minimum Explosive Concentration (MEC) (g/m³):	Not applicable
Limiting Oxygen Concentration (LOC) (%):	Not applicable

10. STABILITY AND REACTIVITY

Reactivity:	No information available
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CHEMICAL STABILITY

Stability:	Stable
Conditions To Avoid:	None known

POSSIBILITY OF HAZARDOUS REACTIONS

Polymerization:	May occur
Conditions To Avoid:	Polymerisation may occur slowly at room temperature. Store at or below -18 C (0 F) to prolong shelf life.

Incompatible materials:	Strong oxidizing agents and strong bases., Strong mineral acids.
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Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide (CO) chromium oxides Oxides of nitrogen
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11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Likely Routes of Exposure: Skin, Eyes, Oral.

Acute toxicity - oral: Not classified - Based on available data and/or professional judgment, the classification criteria are not met.

Acute toxicity - dermal: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Acute toxicity - inhalation: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin corrosion / irritation: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Serious eye damage / eye irritation: Causes serious eye irritation.

Respiratory sensitization: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin sensitization: May cause an allergic skin reaction.

Carcinogenicity: May cause cancer.

Germ cell mutagenicity: Suspected of causing genetic defects.

Reproductive toxicity: Not Classified. - Based on available data and/or professional judgment, the classification criteria are not met.

Specific target organ toxicity (STOT) - single exposure: May cause drowsiness or dizziness.

Specific target organ toxicity (STOT) - repeated exposure: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Aspiration hazard: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

oral	rat	Acute LD50	>2000 mg/kg
dermal	rabbit	Acute LD50	>2000 mg/kg
inhalation	rat	Acute LC50 4 hr	>20 mg/l (Vapors)

LOCAL EFFECTS ON SKIN AND EYE

Acute Irritation	Skin	No data
Acute Irritation	eye	Irritating

ALLERGIC SENSITIZATION

Sensitization	Skin	Sensitizing
Sensitization	respiratory	No data

GENOTOXICITY

Assays for Gene Mutations

Ames Salmonella Assay	No data
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OTHER INFORMATION

The product toxicity information above has been estimated.

HAZARDOUS INGREDIENT TOXICITY DATA

2-Butanone (MEK) has acute oral (rat) and dermal (rabbit) LD50 values of 2700 mg/kg and 6500 mg/kg, respectively. The acute inhalation (rat) LC50 following a 2-hour exposure is 4000 ppm (8.3 mg/L/4hr). Acute exposure to 2-Butanone (MEK) vapor may cause eye and respiratory tract irritation, central nervous system depression, headache, nausea, dizziness and staggered gait. 2-Butanone (MEK) causes moderate to severe eye and mild to moderate skin irritation upon contact. Chronic exposure to 2-Butanone (MEK) vapor may cause central nervous system depression and sleepiness. In a teratogenicity study, pregnant rats inhaled 0, 400, 1000, or 3000 ppm 2-Butanone for 7 hr/day on days 6 through 15 of gestation. Exposure at these levels did not cause any serious birth defects. A few minor malformations were observed at 3000 ppm. At this level, maternal toxicity, evidenced by decreased weight gain and water intake, was observed. In another teratogenicity study, minor malformations were also observed, however, no signs of maternal toxicity were noted. MEK is reported to have shown positive results in a screening test for mutagenicity using the *S. cerevisiae* strain of yeast. Absorption of a high dose of MEK caused death in laboratory animals. Human ingestion of MEK has caused central nervous system effects and aspiration has caused sudden death in laboratory animal tests.

Tetrahydrofuran (THF) has acute oral (rat) and dermal (rabbit) LD50 values of 1650 mg/kg and 2000-3160 mg/kg, respectively. The 3-hour inhalation LC50 (rat) value is 21000 ppm (52.7 mg/L/4hr). Tetrahydrofuran in concentrations greater than 20% are moderately irritating to the eyes, nose and respiratory tract. Tetrahydrofuran also causes moderate skin irritation, without sensitization. Based on acute inhalation studies in rats, tetrahydrofuran is not acutely neurotoxic. Acute inhalation exposure to tetrahydrofuran caused sedation in rats (central nervous system depression) at doses of 5000 ppm and 2500 ppm. All rats recovered fully after removal from exposure and no other clinical signs were observed. Subchronic inhalation exposure to high levels (5000 ppm) of THF produced liver effects and gastrointestinal irritation in laboratory animals. In a developmental toxicity test, inhalation of THF caused fetotoxic effects in laboratory animals. In a two year cancer study with rats and mice exposed by inhalation, THF produced kidney tumors in the male rats and liver tumors in the female mice.

Diacetone alcohol has acute oral (rat) and dermal (rabbit) LD50 values of 3002 mg/kg and 13,500 mg/kg, respectively. The 8-hour inhalation LC50 (rat) value is >1000 ppm (9.48 mg/L/4hr). Acute overexposure to diacetone alcohol vapor may cause severe eye and respiratory irritation. Direct contact with liquid diacetone alcohol may cause mild skin irritation.

Glycidyl Phenol/Formaldehyde Polymer has acute oral (rat) and dermal (rabbit) LD50 values of >5000 mg/kg and 4000 mg/kg, respectively. Direct contact may cause mild eye irritation. Prolonged or repeated dermal exposure may cause irritation. This material may cause allergic skin reactions in rare instances. This polymer has been reported to have tested positive for mutagenicity in the standard Ames screening test as well as in a mouse lymphoma cell point mutation assay.

BBisphenol A based epoxy resin has acute oral (rat) and dermal (rabbit) LD50 values of 30 g/kg and >2000 mg/kg. A 4-hour inhalation LC50 (rat) value of >700 mg/m³ has been reported. Prolonged or repeated exposure may cause primary skin irritation and allergic skin reactions in some instances. Mechanical action of this resin may cause eye irritation upon contact. This resin has Bisphenol A based epoxy resin has acute oral (rat) and dermal (rabbit) LD50 values of 30 g/kg and >2000 mg/kg. A 4-hour inhalation LC50 (rat) value of >700 mg/m³ has been reported. Prolonged or repeated exposure may cause primary skin irritation and allergic skin reactions in some instances. Mechanical action of this resin may cause eye irritation upon contact. This resin has produced moderate eye irritation in laboratory animals. This resin has been reported to have tested positive for mutagenicity in the standard Ames screening test as well as in a mouse lymphoma cell point mutation assay. The literature reports several cases of asthmatic symptoms developing in workers due to occupational exposure to this resin. Large oral doses of Bisphenol A based epoxy resin have produced central nervous system effects in laboratory animals.

Strontium chromate has estimated acute oral (rat) and estimated acute dermal (rabbit) and LD50 values of >300-2000 mg/kg and >2000 mg/kg, respectively. The acute (aerosol) 4-hr inhalation (rat) LC50 ranges from 0.27-0.51 mg/L. Direct contact with this material is not expected to produce skin irritation but may produce mild eye irritation. Inhalation exposure to dust/mist may cause respiratory tract irritation. Prolonged or repeated contact may cause dermal sensitization. Based on in vitro and in vivo testing with hexavalent chromium, strontium chromate may be expected mutagenic, genotoxic or clastogenic. Testing with structurally similar substances, (soluble chromates) have shown the ability to potentially damage fertility or the unborn offspring. Hexavalent chromium has been associated with malignancies of the lung in rats and humans following inhalation exposure and is classified as a known human carcinogen via the inhalation route. Carcinomas and sarcomas have also been found in mouse skin. Strontium chromate is classified as Carcinogenic to Humans by IARC (Group1).

Phenol has acute oral (rat) and acute dermal (rabbit) LD50 values of >50-300 mg/kg and 630-660 mg/kg, respectively. The acute inhalation (aerosol) LC50 (rat/4 hour) value is estimated to be >0.5 - 1.0 mg/L. Direct contact with this material is expected to cause severe skin burns and eye damage. Exposure by any route (oral, dermal, inhalation) can cause effects on the heart and nervous system including changes in heart rate, blood pressure, respiration, as well as tremors and lung disorders, possibly resulting in death. Ingestion of phenol may also cause damage to the liver and muscle fibers and gastrointestinal, circulatory and urinary systems. Chronic dermal exposure can cause digestive disturbances, liver and kidney damage. Chronic ingestion caused a decrease in red blood cell numbers and a decrease in immune response. Chronic inhalation in laboratory animals caused liver and kidney damage. Based on battery of reported in vitro and in vivo studies, this substance is suspected of causing genetic defects. Phenol was not carcinogenic in mice or rats.

Formaldehyde is considered toxic if swallowed, in contact with skin and if inhaled. With acute oral (rat), acute dermal (rabbit) and acute (inhalation) 4-hr (rat-gas) LD/LC50 values of >50 <= 300 mg/kg, >500 <= 1000 mg/kg and >500 <= 2500 ppm, respectively. When formaldehyde is present in the air at levels exceeding 0.1 ppm, some individuals may experience adverse effects such as watery eyes; burning sensations in the eyes, nose, and throat; coughing; wheezing; nausea; and skin irritation. Some people are very sensitive to formaldehyde, whereas others have no reaction to the same level of exposure. Normal breathing may be seriously impaired at levels above 10 ppm and serious lung damage can occur at levels exceeding 50 ppm. Formaldehyde has been reported to cause pulmonary hypersensitivity in some individuals who were exposed to concentrations known to cause irritation; however, no pulmonary sensitization has been demonstrated in laboratory animal studies. Direct contact with formaldehyde solutions can cause severe eye irritation and corrosion to the skin. Repeated or prolonged exposure to this substance may cause dermal sensitization. Formaldehyde was found to be mutagenic in a number of in vitro genotoxicity tests and positive in certain in vivo screening tests for mutagenicity. Formaldehyde did not cause birth defects in rats inhaling concentrations up to 10 ppm. In an oral gavage study 29 -76 pregnant mice per dose group were exposed to 0, 74, 148, 185 mg/kg bw/day formaldehyde (concentration of applied solution: 0, 0.7, 1.5, 1.8%) once daily at gestation day 6-15 (termination at gestation day 19). Maternal toxicity was obvious at 74 mg/kg bw/day (decreased body weight gain); data on local effects in the gastro-intestinal tract are not available, however, these effects were expected even at the low dose level. No embryo- or fetotoxic effects and no teratogenic effects were reported at any dose level, although 185 mg/kg bw/day resulted in a high mortality rate in pregnant mice. There is no existing data (by any route) that conclusively show adverse reproductive or developmental effects in animals exposed to formaldehyde. The International Agency for Research on Cancer (IARC) has classified formaldehyde as a Group 1 (known) human carcinogen based on epidemiological evidence linking formaldehyde exposure to the occurrence of nasopharyngeal cancer, a rare type of cancer. IARC also found limited evidence of cancer of the nasal cavity and paranasal sinuses and sufficient evidence for an association between formaldehyde and leukemia.

Methanol has acute oral (rat) and dermal (rabbit) LD50 values of >5600 mg/kg and 15800 mg/kg, respectively. The 4-hour inhalation exposure LC50 (rat) for methanol vapor is 64,000 ppm (83.78 mg/L). Acute exposure to methanol vapor may cause headache and gastrointestinal irritation. Chronic or extreme inhalation exposure to vapors can cause blurred vision, serious eye damage, central nervous depression and death. Ingestion and inhalation of methanol has caused blindness in humans. Ingestion can also cause harmful effects on the central nervous system and gastrointestinal systems and can lead to death in extreme cases. Absorption of methanol can cause systemic toxicity. It has been reported that chronic skin absorption of methanol has caused ocular disturbances and blindness. Methanol has produced fetotoxicity in rats and teratogenicity in mice exposed by inhalation to high concentrations that did not produce significant maternal toxicity. Methanol is not considered to be a reproductive toxin. Literature also reports an oral (rat) LD50 value of 13.0 ml/kg (10g/kg).

2-Methylimidazole has acute oral (rat) and acute dermal (rat) LD50 values of 1500 mg/kg and >2000 mg/kg, respectively. Direct contact with this material causes severe skin burns and eye damage. This material did not produce dermal sensitization in the Local Lymph Node Assay. 2-Methylimidazole was not mutagenic in the Ames Assay but was shown to have both positive and negative results in the in vivo Rat/Mouse Micronucleus Assays. A reproduction/developmental toxicity screening test was conducted in male and female rats (10/sex/group). The animals were dosed by oral gavage at dose levels of 50, 150 and 500 mg/kg bw/day. Mortality (shortly after parturition) and slightly reduced body weight and food consumption was seen in females at 500 mg/kg bw/day. Males showed no adverse effect up to 500 mg/kg bw/day. Increased gestation length and reduced live birth index was noted in females at 500 mg/kg bw/day. No adverse effect on reproduction parameters were noted in the males. The presence of dissecting aneurysms in the great vessels of the heart was noted at the lowest dose tested (50 mg/kg bw/day). Groups of 25 pregnant female rats received the 2-Methylimidazole by oral gavage at dose levels of 0, 2, 10 or 50 mg/kg/day from gestation day 6 through day 3 of lactation. No signs of maternal toxicity were observed up to 50 mg/kg bw/day. The presence of dissecting aneurysms in the great vessels of the heart was noted in the pups from dams dosed at 10 mg/kg bw/day and above. The No-Observed-Adverse-Effect Level (NOAEL) for maternal toxicity was established at 50 mg/kg/day and the NOAEL for fetal development was considered to be 2 mg/kg bw/day. In a Combined Chronic Toxicity/ Carcinogenicity Study rats fed, daily for two years showed increased an incidence of hepatocellular adenoma or carcinoma. This substance is listed as an IARC Group 2B - Possibly carcinogenic to humans.

12. ECOLOGICAL INFORMATION

TOXICITY, PERSISTENCE AND DEGRADABILITY, BIOACCUMULATIVE POTENTIAL, MOBILITY IN SOIL, OTHER ADVERSE EFFECTS

Aquatic Chronic Toxicity: Harmful to aquatic life with long lasting effects

The ecological assessment for this material is based on an evaluation of its components.

MOBILITY IN SOIL

Not available

RESULTS OF PBT AND vPvB ASSESSMENT

Not determined

HAZARDOUS INGREDIENT TOXICITY DATA

Component / CAS No.	Toxicity to Algae	Toxicity to Fish	Toxicity to Water Flea
2-Butanone (Methyl ethyl ketone) 78-93-3	Not available	LC50 3130 - 3320 mg/L - Pimephales promelas (96h) flow-through	EC50 > 520 mg/L - Daphnia magna (48h) EC50 = 5091 mg/L - Daphnia magna (48h) EC50 4025 - 6440 mg/L - Daphnia magna (48h) Static
Tetrahydrofuran 109-99-9	Not available	LC50 1970 - 2360 mg/L - Pimephales promelas (96h) flow-through LC50 2700 - 3600 mg/L - Pimephales promelas (96h) static	Not available
Diacetone alcohol 123-42-2	Not available	LC50 = 420 mg/L - Lepomis macrochirus (96h) static LC50 = 420 mg/L - Lepomis macrochirus (96h)	Not available
Glycidyl Phenol/ Formaldehyde Polymer 28064-14-4	Not available	Not available	Not available
Bisphenol A based epoxy resin 25036-25-3	Not available	Not available	Not available
Strontium chromate 7789-06-2	LC/EC50 <1 mg/L (estimated) - Algae (72h)	LC/EC50 <1 mg/L (estimated) - Fish (96h)	LC/EC50 <1 mg/L (estimated) - Algae (48h)
Phenol 108-95-2	EbC50 = 61.1 mg/L (nominal) - Green Algae (96h)	LC50 = 24.9-67.5 mg/L (measured) - Fathead Minnows (96h) flow-through LC50 = 8.9 mg/L (measured) - Rainbow Trout (96h) flow-through	EC50 = 3.1 mg/L (measured) - Ceriodaphnia dubia (48h) semi-static
Formaldehyde 50-00-0	EC50 estimated 10-100 mg/L	LC50 estimated 10-100 mg/L	EC50 estimated 10-100 mg/L
Methanol 67-56-1	Not available	LC50 13500 - 17600 mg/L - Lepomis macrochirus (96h) flow-through LC50 > 100 mg/L - Pimephales promelas (96h) static LC50 18 - 20 mL/L - Oncorhynchus mykiss (96h) static LC50 19500 - 20700 mg/L - Oncorhynchus mykiss (96h) flow-through LC50 = 28200 mg/L - Pimephales promelas (96h) flow-through	Not available
2-Methylimidazole 693-98-1	Not available	Not available	Not available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

The Company encourages the recycle, recovery and reuse of materials, where permitted. If disposal is necessary, The Company recommends that organic materials, especially when classified as hazardous waste, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

14. TRANSPORT INFORMATION

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

ADR/RID/ADN

Dangerous Goods? X
Proper Shipping Name: Flammable liquid, n.o.s.
Class: 3
UN Number: UN1993
Packing Group: II
Transport Label Required: Flammable liquid
Technical Name (N.O.S.): tetrahydrofuran, 2-Butanone
Tunnel restriction code: D/E
Comments: Not intended for shipment by inland waterways in tank vessels.

IMO

Dangerous Goods? X
Proper Shipping Name: Flammable liquid, n.o.s.
Hazard Class: 3
UN Number: UN1993
Packing Group: II
Transport Label Required: Flammable liquid
Technical Name (N.O.S.): tetrahydrofuran, 2-Butanone

ICAO / IATA

Dangerous Goods? X
Proper Shipping Name: Flammable liquid, n.o.s.
Hazard Class: 3
Packing Group: II
UN Number: UN1993
Transport Label Required: Flammable liquid
Technical Name (N.O.S.): tetrahydrofuran, 2-Butanone

15. REGULATORY INFORMATION

SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS / LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Ozone Depleting Substances (Regulation (EC) No 1005/2009): Not applicable
Persistent Organic Pollutants (Regulation (EC) No 850/2004): Not applicable
Prior Informed Consent (Regulation (EC) No 689/2008): Not applicable
Substances subject to Authorization (Annex XIV of Regulation (EC) No 1907/2006): Yes
Strontium chromate (1-5 %)

Substances subject to Restrictions for certain applications(Annex XVII of Regulation(EC)No 1907/2006):
Yes

Refer to Annex XVII of REACH for details of the restricted applications.

Strontium chromate (1-5 %)
This is a carcinogen substance restricted under item 28.
2-Butanone (Methyl ethyl ketone) (45-65 %)
This substance is a flammable restricted for aerosols under item 40.
Tetrahydrofuran (10-20 %)
This substance is a flammable restricted for aerosols under item 40.
Arsenic (0 %)
This substance is restricted under item 19.

Strontium chromate (1-5 %)

Water Endangering Class (Germany): 2 according to VwVwS, 17.05.1999

Inventory Information

European Economic Area (including EU): Cytec has appointed an Only Representative to relieve our customers from their registration requirements under the REACH Regulation (EC) No. 1907/2006. Please contact us if you wish to benefit from the OR arrangement.

United States (USA):

All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada:

All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: One or more components of this product are NOT included on the Philippine (PICCS) inventory.

Switzerland: All components of this product are exempt from the new substance notification requirements for Switzerland (SR 813.11 art. 16-17).

Taiwan: All components of this product are included on the Taiwan Chemical Substance Inventory (TCSI) or are not required to be listed on the Taiwan inventory.

CHEMICAL SAFETY ASSESSMENT

No Chemical Safety Assessment has been carried out.

16. OTHER INFORMATION

Reasons for Issue: Revised Section 3
Revised Section 11
Revised Section 16

Date Prepared: 05-Sep-2016

Date of last significant revision: 05-Sep-2016

Classification methods include one or more of the following: use of specific product data, read-across data, modeling, professional judgment or a component based evaluation.

Component Hazard Phrases

2-Butanone (Methyl ethyl ketone)

H225 - Highly flammable liquid and vapour.

H319 - Causes serious eye irritation.

H336 - May cause drowsiness or dizziness.

Tetrahydrofuran

H225 - Highly flammable liquid and vapour.

H351 - Suspected of causing cancer.

H302 - Harmful if swallowed.

H335 - May cause respiratory irritation.

H319 - Causes serious eye irritation.

Diacetone alcohol

H319 - Causes serious eye irritation.

Glycidyl Phenol/ Formaldehyde Polymer

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H411 - Toxic to aquatic life with long lasting effects.

Bisphenol A based epoxy resin

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H319 - Causes serious eye irritation.

H411 - Toxic to aquatic life with long lasting effects.

Strontium chromate

H350 - May cause cancer.

H341 - Suspected of causing genetic defects.

H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child.

H302 - Harmful if swallowed.

H330 - Fatal if inhaled.

H335 - May cause respiratory irritation.

H317 - May cause an allergic skin reaction.

H400 - Very toxic to aquatic life.

H410 - Very toxic to aquatic life with long lasting effects.

Phenol

H301 - Toxic if swallowed.

H311 - Toxic in contact with skin.

H314 - Causes severe skin burns and eye damage.

H331 - Toxic if inhaled.

H341 - Suspected of causing genetic defects.

H373 - May cause damage to organs through prolonged or repeated exposure.

H411 - Toxic to aquatic life with long lasting effects.

Formaldehyde

H301 - Toxic if swallowed.

H311 - Toxic in contact with skin.

H314 - Causes severe skin burns and eye damage.

H317 - May cause an allergic skin reaction.

H331 - Toxic if inhaled.

H341 - Suspected of causing genetic defects.

H350 - May cause cancer.

Methanol

H225 - Highly flammable liquid and vapour.

H301 - Toxic if swallowed.

H311 - Toxic in contact with skin.

H331 - Toxic if inhaled.

H370 - Causes damage to organs.

2-Methylimidazole

H302 - Harmful if swallowed.

H314 - Causes severe skin burns and eye damage.

H351 - Suspected of causing cancer.

H360FD - May damage fertility. May damage the unborn child.

This information is given without any warranty or representation. We do not assume any legal responsibility for same, nor do we give permission, inducement, or recommendation to practice any patented invention without a license. It is offered solely for your consideration, investigation, and verification. Before using any product, read its label.

> BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET



DESCRIPTION

BR[®] 127 corrosion inhibiting primer is a modified epoxy primer. It is the industry standard for high-performance corrosion inhibiting primers and has been used in virtually every commercial aircraft built since its introduction.

BR 127 primer can be used with essentially all 250°F (121°C) film adhesives and has been designed to provide optimal structural performance at temperatures ranging from -67°F to 300°F (-55°C to 149°C).

BR 127 primer is formulated to provide maximum environmental resistance and durability within the bond line, as well as prevent corrosive undercutting. It can also be used effectively as a protective coating outside bonded areas.

BR 127 corrosion inhibiting primer can be cured prior to bonding. Recommended cure cycles range from 4 hours at 180°F (82°C) to 30 minutes at 250°F (121°C).

Articles primed with BR 127 primer and then cured have an indefinite shelf life. Primed details should be wrapped in Kraft paper (as protection from dust and dirt) and stored prior to adhesive bonding.

Maintaining controlled conditions of 85°F (29°C) maximum temperature and 65% maximum humidity is recommended for extended storage life.

Cure cycles for adhesive films primed with BR 127 primer may vary from 200°F to 350°F (93°C to 177°C) with minimum pressures to assure proper mating of bonded details.

FEATURES & BENEFITS

- Industry-wide standard for corrosion resistant primers
- Prevents hydrolysis of oxide layers
- Structural performance from -67°F to 300°F (-55°C to 149°C)
- Compatible with a wide variety of adhesive systems
- Improves hydrolytic stability at the adhesive-to-metal interface
- Protects prepared surfaces from further oxidation

BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET

CHARACTERISTICS

Table 1 | Product Description

Color	Yellow
Solids	10% ± 1% sprayable
Density	7.3 lb/gal (875 g/liter)
Volatile organic content	6.6 lb/gal (792 g/liter)
Out-gassing properties¹	0.48% TML, 0.03% CVCM
Shop life at 75°F (24°C)	10 days
Shop life at 90°F (32°C)	5 days
Shelf life at recommended storage	12 months
Recommended storage	Store at or below 0°F (-18°C)

¹ NASA reference publication 1124, GSC 10164-reference number)

Complimentary Products

The following products are recommended for use with BR 127 corrosion inhibiting primer:

- FM[®] 73 film adhesive
- FM[®] 87 film adhesive
- FM[®] 94 film adhesive
- BR[®] 95 past adhesive
- FM[®] 123-2 film adhesive
- FM[®] 123-5 film adhesive
- FM[®] 300 film adhesive
- FM[®] 300-1 film adhesive
- FM[®] 300-2 film adhesive

> BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET

PROPERTIES

Table 2 | Physical Properties of Structural Adhesives Cured with BR 127

Property	Condition	FM 73 adhesive ¹	FM 87-1 K adhesive ²
Tensile shear, psi (MPa) (Federal standard MMM-A-132A)	-67°F (-55°C)	6650 (45.9)	5500 (38.0)
	75°F (24°C)	6500 (44.9)	6700 (46.2)
	180°F (82°C)	4340 (29.9)	4120 (28.4)
	250°F (120°C)	1040 (7.2)	3250 (22.4)
Wide area lap shear, psi (MPa) (Federal standard MMM-A-132A)	-67°F (-55°C)	5460 (37.6)	5490 (37.9)
	75°F (24°C)	5100 (35.2)	5200 (35.9)
	180°F (82°C)	4080 (28.2)	4200 (29.0)
	250°F (120°C)	1410 (9.7)	2710 (18.7)
Metal-to-metal climbing drum peel, in-lb/in (Nm/m) (ASTM-D-1781-76)	-67°F (-55°C)	73 (325)	63 (280)
	75°F (24°C)	95 (423)	73 (325)
	180°F (82°C)	130 (578)	75 (334)
	250°F (120°C)	68 (302)	57 (254)
Floating roller peel, in-lb/in (kN/m) (ASTM-D-3167-76)	-67°F (-55°C)	66 (11.6)	60 (10.5)
	75°F (24°C)	65 (11.4)	70 (12.3)
	180°F (82°C)	96 (16.8)	66 (11.6)
	250°F (120°C)	55 (9.6)	55 (9.6)
Honeycomb sandwich peel, in-lb/3in (Nm/m) (MIL-A-25463B)	-67°F (-55°C)	53 (78.6)	53 (78.6)
	75°F (24°C)	95 (140.9)	63 (93.4)
	180°F (82°C)	41 (60.8)	59 (87.5)
	250°F (120°C)	5 (7.4)	50 (74.1)
Flat-wise tensile, psi (MPa) (MIL-A-25463B)	-67°F (-55°C)	1680 (11.6)	1360 (9.3)
	75°F (24°C)	1300 (9.0)	1050 (7.2)
	180°F (82°C)	660 (4.6)	640 (4.4)
	250°F (120°C)	72 (0.5)	380 (2.6)

¹ Test Condition: 0.06 psf (300 gsm); Cure Temperature: 1 hour at 250°F (120°C); Service Temperature: 180°F (82°C)

² Test Condition: 0.06 psf (300 gsm); Cure Temperature: 1 hour at 250°F (120°C); Service Temperature: 250°F (120°C)

> BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET

Table 3 | Physical Properties of Structural Adhesives Cured with BR 127 Continued

Property	Condition	FM 123-2 adhesive ¹	FM 300 adhesive ²	FM 300-2K adhesive ³
Tensile shear, psi (MPa) (Federal standard MMM-A-132A)	-67°F (-55°C)	5790 (39.9)	5460 (37.7)	4580 (31.6)
	75°F (24°C)	5580 (38.5)	5850 (40.4)	5900 (40.7)
	180°F (82°C)	3350 (23.1)	5180 (35.7)	5300 (36.6)
	250°F (120°C)	1490 (10.3)	4200 (19.0)	3730 (25.7)
	300°F (149°C)	NA ⁴	3160 (21.8)	2300 (15.9)
Wide area lap shear, psi (MPa) (Federal standard MMM-A-132A)	-67°F (-55°C)	4900 (33.8)	4510 (37.6)	—
	75°F (24°C)	4240 (29.2)	4700 (35.2)	—
	180°F (82°C)	2980 (20.5)	3980 (28.2)	—
	250°F (120°C)	1250 (8.6)	—	—
	300°F (149°C)	NA ⁴	2550 (17.6)	—
Metal-to-metal climbing drum peel, in-lb/in (Nm/m) (ASTM-D-1781-76)	-67°F (-55°C)	56 (249)	14 (62)	18 (80)
	75°F (24°C)	65 (289)	37 (165)	35 (156)
	180°F (82°C)	60 (267)	44 (196)	40 (178)
	250°F (120°C)	—	45 (200)	38 (169)
	300°F (149°C)	NA ⁴	30 (133)	40 (178)
Floating roller peel, in-lb/in (kN/m) (ASTM-D-3167-76)	-67°F (-55°C)	52 (9.1)	26 (4.6)	18 (3.2)
	75°F (24°C)	60 (10.5)	28 (4.9)	36 (6.3)
	180°F (82°C)	69 (10.5)	30 (5.3)	40 (7.0)
	250°F (120°C)	—	32 (5.6)	42 (7.4)
	300°F (149°C)	NA ⁴	25 (4.4)	42 (7.4)
Honeycomb sandwich peel, in-lb/3in (Nm/m) (MIL-A-25463B)	-67°F (-55°C)	59 (87.5)	39 (57.8)	34 (50.4)
	75°F (24°C)	55 (81.5)	37 (54.9)	45 (66.7)
	180°F (82°C)	33 (48.9)	42 (62.8)	48 (71.2)
	250°F (120°C)	—	38 (56.3)	44 (65.2)
	300°F (149°C)	NA ⁴	23 (34.1)	33 (48.9)
Flat-wise tensile, psi (MPa) (MIL-A-25463B)	-67°F (-55°C)	1270 (8.7)	1080 (7.4)	1080 (7.4)
	75°F (24°C)	840 (5.8)	1030 (7.1)	1120 (7.7)
	180°F (82°C)	420 (2.9)	870 (6.0)	960 (6.6)
	250°F (120°C)	—	660 (4.6)	690 (4.7)
	300°F (149°C)	NA ⁴	470 (3.2)	330 (2.2)

¹ Test Condition: 0.06 psf (300 gsm); Cure Temperature: 1 hour at 250°F (120°C); Service Temperature: 180°F (82°C)

² Test Condition: 0.08 psf (400 gsm); Cure Temperature: 1 hour at 350°F (177°C); Service Temperature: 300°F (150°C)

³ Test Condition: 0.08 psf (400 gsm); Cure Temperature: 1.5 hour at 250°F (120°C); Service Temperature: 300°F (150°C)

⁴ Not Applicable: For additional information refer to the individual adhesive product literature

> BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET

Table 4 | Effect of Salt Spray on Strength Retention

(2024-T3 alclad aluminum lap shear coupons primed with BR 127 and bonded with a 250°F (121°C) cure elastomer modified epoxy adhesive)

Exposure Time	Lap Shear Strength, psi (MPa)
Initial	5680 (39.2)
After 30 days	5890 (40.6)
After 90 days	4970 (34.3)
After 180 days	4480 (30.9)

APPLICATION NOTES

Preparation of Aluminum

A clean, dry, grease-free aluminum surface is required for optimum performance of the BR 127 primer. Aluminum surfaces should be cleaned by either an FPL etch process or phosphoric acid anodizing process. BR127 primer bonds well to surfaces prepared by either surface treatment.

The procedure for cleaning aluminium surfaces by FPL etch is described in the following steps. For information on phosphoric acid anodizing refer to Boeing patent 4,085,012 issued April 18, 1978.

FPL Etch Procedure

The FPL etch process involves immersion of the aluminum surface in a sodium dichromate/sulfuric acid solution. Instructions for preparing this solution follow.

NOTE: Chromic acid is highly corrosive. All contact with skin and tissues must be prevented. Wear impervious apron, boots and gloves as well as splash-proof goggles and a face shield when preparing and/or using chromic acid solutions. If air-borne concentrations of chromic acid exceed the 8 hour total weight average (TWA) permissible exposure limit (PEL) established by OSHA, respirators approved by NIOSH must be worn.

NOTE: Chromic acid solutions should be prepared and handled only in fume hoods or other adequately ventilated areas, even when the TWA is not exceeded. Traces of chromyl chloride may occur in the vapors above heated chromic acid solutions prepared from chlorinated water.

Preparation of the Sodium Dichromate/Sulfuric Acid Solution

Prepare the sodium dichromate/sulfuric acid solution according to the following steps. This solution will dissolve 1.5 grams of 2024 clad aluminium per liter.

1. Dissolve 34 grams of sodium dichromate (FED-O-S-595A) in 700 ml of deionized water
2. Add 304 grams of sulphuric acid (FED-O-A-115, Class A, Grade 2)
3. Mix well adding additional deionized water to make one liter of solution.

FPL Etch Cleaning Method

Once the sodium dichromate/sulfuric acid solution is prepared, the aluminium surface should be cleaned according to the following steps.

1. Vapor degrease, alkaline clean, and rinse the aluminium surface checking for water break
2. Immerse the aluminium in the sodium dichromate/sulfuric acid solution at 155°F ± 5°F (68°C ± 3°C) for the length of time listed in Table 5.

> BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET

Table 5 | Etch Time for Clad and Bare Aluminum

Type of Aluminum	Etch Time
Clad	10 minutes
Bare	5 minutes

3. Spray rinse the aluminum with deionized water at or below 75°F (24°C)
4. Immerse the aluminum in cold water
5. Repeat the spray rinse with deionized water
6. Check for water break
7. Dry in at a maximum temperature of 150°F (65°C) in an oven with mechanical exhaust ventilation

Primer Application

1. Allow the BR 127 primer to warm to room temperature prior to opening the container
2. Thoroughly mix the BR 127 prior to application and continue to agitate it during application
3. Spray or brush coat to a dry primer thickness of 0.0001 inch (0.0025 mm) nominal with a 0.0003 inch (0.0075 mm) maximum thickness.
For protective coating applications, increase primer thickness to 0.0004 up to 0.0010 inch (0.0100 to 0.0250 mm).
4. Air dry for 30 minutes minimum prior to oven cure
5. Oven cure for 30 minutes at 250°F ± 10°F (120°C ± 6 °C)

NOTE: Primed assemblies which have been cured and wrapped with a protective covering such as Kraft paper may be stored at 75°F (24°C) for six months or longer without fear of degradation of the final bond.

Bonding Procedure

1. Before bonding assemble all detail parts and film adhesive.
2. Cut patterns of the film adhesive as required before removal of protective covering
3. Apply the film adhesive smoothly to the parts.
For additional tack, warm to approximately 110°F (43°C) with a heat gun or tack table.
4. After assembly of the details, apply pressure and cure using the standard cure cycle recommended for the adhesive product.

> BR[®] 127 CORROSION INHIBITING PRIMER

TECHNICAL DATA SHEET

PRODUCT HANDLING AND SAFETY

Cytec Engineered Materials recommends wearing clean, impervious gloves when working with epoxy resin systems to reduce skin contact and to avoid contamination of the product.

Materials Safety Data Sheets (MSDS) and product labels are available upon request and can be obtained from any Cytec Engineered Materials Office.

DISPOSAL OF SCRAP MATERIAL

Disposal of scrap material should be in accordance with local, state, and federal regulations.

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SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name: **BR® 6747-1 Water Based Primer, 20-40% Solids**
Product Description: Mixture of modified epoxy resin and water
Intended/Recommended Use: Engineered materials

CYTEC INDUSTRIES B.V., BOTLEKWEI 175, 3197 KA BOTLEK-ROTTERDAM, HAVENS 4501, THE NETHERLANDS
 EMERGENCY PHONE: IN THE NETHERLANDS: 0181-295600; OUTSIDE THE NETHERLANDS: 31-181-295600

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2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

Component / CAS No.	% (w/w)	EC-No	Symbol / Risk Phrases
Strontium chromate 7789-06-2	2 - 4	232-142-6	T N; R45 R22 R50/53
Aromatic amine -	3 - 6	-	Xn; R:22
Aromatic substituted urea -	2 - 5	-	Xi; R:36
Modified phenolic epoxy resin -	2 - 4	-	Xi; R:36-43
Phenolic epoxy resin #1 -	2 - 5	-	Xi; N; R:43-51/53
Poly(aromatic glycidyl ether) #2 -	10 - 30	-	Xi; N; R:36/38-43-51/53

See Section 16 for Ingredient Risk Phrase Text

3. HAZARDS IDENTIFICATION

HUMAN AND ENVIRONMENTAL HAZARDS

May cause sensitization by skin contact.
 May cause cancer.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Irritating to eyes and skin.

4. FIRST AID MEASURES

Ingestion:

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Skin contact:

Flush with a continuous flow of lukewarm water until material is removed. Remove contaminated clothing and shoes without delay. Obtain medical attention. Do not reuse contaminated clothing without laundering.

Eye contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical advice if there are persistent symptoms.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use water spray or fog, carbon dioxide or dry chemical.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

Keep containers cool by spraying with water if exposed to fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods for cleaning up:

Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

Environmental Precautions:

Use appropriate containment to avoid environmental contamination.

7. HANDLING AND STORAGE

Handling

None

Storage

none

Storage Temperature: Store at 21 °C

Reason: Integrity.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS - Limits

Strontium chromate 7789-06-2

The Netherlands: MAC (Maximal Aanvaarde Concentratie)

0.025 mg/m³ (MAC)

0.5 mg/m³ (MAC)

0.05 mg/m³ (STEL)

0.01 mg/m³ (STEL)

0.01 mg/m³ as Cr (STEL)

(skin)

Germany: MAK (Maximale Arbeitsplatzkonzentration)

0.05 mg/m³ inhalable fraction (TRK)

United Kingdom: MEL (Maximum Exposure Limits)

0.05 mg/m³ (MEL-TWA)

0.5 mg/m³ (OES-TWA)

France: VLEP (Valeur Limites d'Exposition Professionnelle)

0.05 mg/m³ as Cr (VME)

0.5 mg/m³ (VME)

Denmark: Graensevaerdier

0.0005 mg/m³ as Cr (TWA)

0.5 mg/m³ dust (TWA)

0.005 mg/m³ as Cr (TWA)

Norway:

0.5 mg/m³ (TWA - OEL)

0.02 mg/m³ as Cr (TWA - OEL)

0.5 mg/m³ as Cr (TWA - OEL)

Sweden: Hygieniska Gransvarden

0.5 mg/m³ total dust (LLV)

0.02 mg/m³ as Cr (LLV)

0.5 mg/m³ total dust, as Cr, except chromic acid and chromates (LLV)

ACGIH (TLV)

0.0005 mg/m³ as Cr (TWA)

Engineering measures:

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure when spraying or curing at elevated temperatures.

Respiratory protection:

Where exposures are below the established exposure limit, no respiratory protection is required.

Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

A full facepiece respirator also provides eye and face protection.

Cutting, grinding or sanding of parts fabricated after curing may create respirable dust particles. Respiratory protection appropriate for this dust may be required. Refer to components listed above for potential hazardous components in the dust.

Eye protection:

Wear eye/face protection such as chemical splash proof goggles or face shield.

Eyewash equipment and safety shower should be provided in areas of potential exposure.

Skin Protection:

Avoid skin contact.

Wear impermeable gloves and suitable protective clothing.

Barrier creams may be used in conjunction with the gloves to provide additional skin protection.

Additional advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use.

Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

It is recommended that a shower be taken after completion of workshift especially if significant contact has occurred.

Work clothing should then be laundered prior to reuse. Street clothing should be stored separately from work clothing and protective equipment. Work clothing and shoes should not be taken home.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour:	yellow
Appearance:	liquid
Odour:	slight amine
Boiling Point:	100 °C (value for water)
Melting Point:	Not applicable
Vapour pressure:	similar to water
Specific Gravity/Density:	1.05g/cc
Vapour density:	similar to water
Percent Volatile (% by wt.):	60 - 80(water)
pH:	7.0 - 8.0
Saturation In Air (% By Vol.):	Not available
Evaporation rate:	similar to water
Solubility In Water:	dispersible
Volatile Organic Content (EU):	Not applicable
Flash point:	>93.3 °C closed cup
Flammable Limits (% By Vol):	Not applicable
Autoignition temperature:	Not applicable
Decomposition temperature:	Not available
Partition coefficient (n-octanol/water):	Not available

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	None known
Polymerization:	May occur
Conditions To Avoid:	Avoid contact with oxidizing agents. Avoid contact with bases or amines. Do not heat above 29 C (85 F).
Materials to avoid:	Bases and amines.
Hazardous decomposition products:	carbon dioxide Carbon monoxide oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

Potential health effects

May cause sensitization by skin contact.

May cause cancer.

Irritating to eyes and skin.

SUBSTANCE/PREPARATION**ACUTE TOXICITY DATA**

Oral	rat	Acute LD50	>3,300 mg/kg
dermal	rabbit	Acute LD50	>2,000 mg/kg
Inhalation	rat	Acute LC50	No data

LOCAL EFFECTS ON SKIN AND EYE

Acute Irritation	dermal	irritating
Acute Irritation	eye	irritating

ALLERGIC SENSITIZATION

Sensitization	Skin	Sensitizing
Sensitization	respiratory	No data

GENOTOXICITY**Assays for Gene Mutations**

Ames Salmonella Assay	No data
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HAZARDOUS INGREDIENT TOXICITY DATA**ACUTE TOXICITY DATA**

Phenolic epoxy resin #1

Oral Acute LD50 (Actual) > 2000 mg/kg
dermal Acute LD50 (Actual) > 2000 mg/kg

Aromatic amine

oral (gavage) rat Acute LD50 (Actual) > 300 mg/kg
dermal rabbit Acute LD50 (Actual) > 2000 mg/kg

Aromatic substituted urea

Oral rat Acute LD50 (Actual) > 5000 mg/kg
dermal rabbit Acute LD50 (Actual) > 2000 mg/kg

Modified phenolic epoxy resin

Oral rat Acute LD50 (Actual) > 5000 mg/kg
dermal rabbit Acute LD50 (Actual) > 10000 mg/kg

Poly(aromatic glycidyl ether) #2

Oral rat Acute LD50 (Actual) > 5000 mg/kg
dermal rabbit Acute LD50 (Actual) > 2000 mg/kg
Inhalation rat Acute LC50 (actual) > 700 mg/m³

LOCAL EFFECTS ON SKIN AND EYE

Strontium chromate

Acute Dermal Irritation Not irritating

Aromatic amine

Acute Dermal Irritation Not irritating
Acute Eye Irritation Not irritating

Aromatic substituted urea

Acute Eye Irritation irritating

Modified phenolic epoxy resin

Acute Dermal Irritation Not irritating
Acute Eye Irritation irritating

Poly(aromatic glycidyl ether) #2

Acute Eye Irritation irritating

Acute Dermal Irritation irritating

ALLERGIC SENSITIZATION

Strontium chromate

Skin Sensitization Sensitizing

Skin Sensitization Sensitizing

Phenolic epoxy resin #1

Sensitization dermal Sensitizing

Modified phenolic epoxy resin

Skin Sensitization Sensitizing

Poly(aromatic glycidyl ether) #2

Skin Sensitization Sensitizing

GENOTOXICITY

Assays for Gene Mutations

Aromatic amine

Ames Salmonella Assay Not mutagenic

Assays For Chromosomal Aberrations

Aromatic amine

Chromosome Aberration Not mutagenic

Assays for DNA effects

Aromatic amine

DNA Repair Not mutagenic

OTHER INFORMATION

Strontium chromate

Human Carcinogen

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12. ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
The ecological assessment for this material is based on an evaluation of its components.

13. DISPOSAL CONSIDERATIONS

CYTEC encourages the recycle, recovery and reuse of materials, where permitted. If disposal is necessary, CYTEC recommends that organic materials, especially when classified as hazardous waste, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

ADR/RID

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.
Class: 9
UN Number: 3082
Packing Group: III
Transport Label Required: Miscellaneous
Technical Name (N.O.S.): Contains poly(aromatic glycidyl ether) and strontium chromate

IMO

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Hazard Class: 9
UN Number: 3082
Packing group: III
Transport Label Required: Miscellaneous
Marine pollutant
Technical Name (N.O.S.): Contains poly(aromatic glycidyl ether) and strontium chromate

ICAO / IATA

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Hazard Class: 9
Packing group: III
UN Number: 3082
Transport Label Required: Miscellaneous
Packing Instructions/Maximum Net Quantity Per Package:
Passenger Aircraft: 914; No Limit
Cargo aircraft: 914; No Limit
Technical Name (N.O.S.): poly(aromatic glycidyl ether), strontium chromate

15. REGULATORY INFORMATION

EU MARKING AND LABELING

Symbol(s): T - Toxic
N - Dangerous for the environment

Risk Phrases:

R43 - May cause sensitization by skin contact.
R45 - May cause cancer.
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R36/38 - Irritating to eyes and skin.

Safety Phrases:

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
S53 - Avoid exposure - obtain special instructions before use.
S57 - Use appropriate containment to avoid environmental contamination.
S36/37 - Wear suitable protective clothing and gloves.

INVENTORY INFORMATION

European Union (EU):

All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

United States (USA):

All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada:

All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are NOT included on the Korean (ECL) inventory.

Philippines: All components of this product are NOT included on the Philippine (PICCS) inventory.

16. OTHER INFORMATION

Reasons for Issue:

Revised Section 14

Component Risk Phrases

Strontium chromate

R45 - May cause cancer.

R22 - Harmful if swallowed.

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Aromatic amine

R22 - Harmful if swallowed.

Aromatic substituted urea

R36 - Irritating to eyes.

Modified phenolic epoxy resin

R36 - Irritating to eyes.

R43 - May cause sensitization by skin contact.

Phenolic epoxy resin #1

R43 - May cause sensitization by skin contact.

R36/38 - Irritating to eyes and skin.

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Poly(aromatic glycidyl ether) #2

R43 - May cause sensitization by skin contact.

R36/38 - Irritating to eyes and skin.

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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> BR[®] 6747-1 BONDING PRIMER

TECHNICAL DATA SHEET



DESCRIPTION

BR[®] 6747-1 corrosion inhibiting primer is a one part, chromate based, modified epoxy primer which contains no volatile organic components (VOC).

BR 6747-1 is 100% water-based and does not rely on exempt solvents to achieve its zero VOC level rating. It exceeds all state and federal VOC emission regulations for structural adhesive bonding primers and offers mechanical properties and corrosion resistance equal to that of solvent-based primer systems. BR 6747-1 also provides outstanding performance with most 250 – 350°F (121 – 177°C) curing adhesive systems.

BR 6747-1 offers wide application/processing latitude, simple processing with HVLP or standard air atomizing spray equipment and is insensitive to spray booth conditions — temperature from 65 – 95°F (18 – 35°C) and relative humidity from 30 – 70%. For applications which do not allow the use of chromate corrosion inhibitors, please see the Cytec Technical Bulletin for BR 6747-1 NC non-chromate-based corrosion inhibiting adhesive bonding primer.

FEATURES & BENEFITS

- Zero V.O.C., 100% water-based
- Short drying time, easy to determine when flash-off is complete
- Drips and runs less likely to occur, clean-up requires water only
- Spray gun clogging and tank scaling not an issue (rated at 600 hours continuous operation)
- Excellent corrosion resistance
- Can be cured from 250 – 350°F (121 – 177°C) and is compatible with a wide variety of 250 – 350°F (121 – 177°C) curing adhesives
- Approved primer for AC-[®]130 bonding prep process (Boeing's patented sol-gel technology)
- Mechanical properties equal to solvent-based primer systems with primer thickness from 0.00015 to 0.0004 inches
- Service temperature from -70°F to 350°F (-57°C to 177°C)
- Protects prepared surface from further oxidation, prevents hydrolysis of oxide layers
- MEK wipe resistant after 60 minute cure at 250°F (121°C)
- Long storage life: 12 months at 40 – 50°F (4.5 – 12.8°C)

SUGGESTED APPLICATIONS

- Bond primer for aluminium components where corrosion protection is critical
- Also very effective as a corrosion inhibiting paint primer for aluminium substrates.
- Effective adhesion promoter for other metals (stainless steel, titanium, and nickel)

> BR[®] 6747-1 BONDING PRIMER

TECHNICAL DATA SHEET

CHARACTERISTICS

Table 1 | Physical Properties (Liquid Primer)

Shelf Life	12 months form date of shipment at recommended storage condition: 40°F to 55°F (4.5°C to 12.8°C) 6 months at 56°F to 75°F (14°C to 24°C) DO NOT FREEZE
Shop Life	30 days at 75°F to 90°F (24°C to 32°C)
Solids	20% or 30% available
Color	Yellow
Density	20% solids: 8.78 lb/gal (1.05 g/cc) 30% solids: 9.10 lb/gal (1.09 g/cc)
Inhibitor	15% chromate (based on resin solids)
Recommended Products	FM [®] 73, FM 94, FM 300, FM 300-2, FM 309-1

PROPERTIES

Table 2 | Primer Properties (Properties of Cured Coating)

Pencil Hardness	8H+ after a standard 60 minute 250°F (121°C) cure cycle. 8H+ hardness rating is maintained after 7 day exposure to 75°F (24°C) deionized water, Skydrol D4, MIL-H-5606 fluid, MIL-L-7808 jet engine oil, Jet Fuel A and Methyl Ethyl Ketone (MEK).
MEK Resistance	A properly cured coating of BR 6747-1 will withstand 20+ wipes with a shop towel saturated with MEK
Salt Spray Resistance	A properly cured coating of BR 6747-1 will pass 40 day, 5% salt spray exposure test per ASTM B117
Filiform Corrosion	A properly cured coating of BR 6747-1 which has been top coated with Polyurethane Enamel, scribed to expose bare aluminum and then exposed to 12 normal Hydrochloric Acid vapor for one hour will have no blistering of the top coat after 30 day exposure to 95°F (35°C) and 85% RH.

> BR[®] 6747-1 BONDING PRIMER

TECHNICAL DATA SHEET

Table 3 | Mechanical Properties with FM[®] 73, 250°F (121°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	7000 (48.3)
	75°F (24°C)	6500 (44.8)
	180°F (82°C)	4500 (31.0)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	62 (10.9)
	75°F (24°C)	82 (14.4)
	225°F (107°C)	56 (9.8)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	FM 73, 0.060 lb/ft ² (293 gsm) adhesive cured 60 minutes at 250°F (121°C) under 40psi (275 kPa) pressure	

Table 4 | Mechanical Properties with Metlbond 1146-3, 250°F (121°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	6500 (44.8)
	75°F (24°C)	6000 (41.4)
	250°F (177°C)	3600 (24.8)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	35 (6.1)
	75°F (24°C)	60 (10.5)
	225°F (107°C)	50 (8.8)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	Metlbond 1146M, 0.060 lb/ft ² (293 gsm) adhesive cured 60 minutes at 250°F (121°C) under 40psi (275 kPa) pressure	

Table 5 | Mechanical Properties with Metlbond 1113, 250°F (121°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	7300 (50.3)
	75°F (24°C)	6800 (46.9)
	180°F (82°C)	3800 (26.2)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	55 (9.6)
	75°F (24°C)	82 (14.4)
Metal-to-Metal Climbing Drum Peel, pli (Nm/m)	75°F (24°C)	70 (311)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	Metlbond 1113, 0.060 lb/ft ² (293 gsm) adhesive cured 60 minutes at 250°F (121°C) under 40psi (275 kPa) pressure	

> BR[®] 6747-1 BONDING PRIMER

TECHNICAL DATA SHEET

Table 6 | Mechanical Properties with FM[®] 123-2, 250°F (121°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	4600 (31.7)
	75°F (24°C)	5100 (35.2)
	180°F (82°C)	3400 (23.5)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	40 (7.8)
	75°F (24°C)	57 (10.0)
Metal-to-Metal Climbing Drum Peel, pli (Nm/m)	75°F (24°C)	62 (276)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	FM 123-2, 0.060 lb/ft ² (293 gsm) adhesive cured 60 minutes at 250°F (121°C) under 40psi (275 kPa) pressure	

Table 7 | Mechanical Properties with FM[®] 87-1K, 250°F (121°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	5600 (38.6)
	75°F (24°C)	6600 (45.5)
	250°F (121°C)	3400 (23.5)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	42 (7.4)
	75°F (24°C)	66 (11.6)
Metal-to-Metal Climbing Drum Peel, pli (Nm/m)	75°F (24°C)	88 (391)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	FM 87-1K, 0.060 lb/ft ² (293 gsm) adhesive cured 60 minutes at 250°F (121°C) under 40psi (275 kPa) pressure	

Table 8 | Mechanical Properties with FM[®] 300-2M, 250°F (121°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	4300 (29.7)
	75°F (24°C)	5000 (39.5)
	300°F (149°C)	1800 (12.4)
Floating Roller Peel, pli (kN/m)	75°F (24°C)	32 (5.6)
Metal-to-Metal Climbing Drum Peel, pli (Nm/m)	75°F (24°C)	30 (133)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	FM 300-2M, 0.085 lb/ft ² (415 gsm) adhesive cured 60 minutes at 250°F (121°C) under 40psi (275 kPa) pressure	

> BR[®] 6747-1 BONDING PRIMER

TECHNICAL DATA SHEET

Table 9 | Mechanical Properties with Metlbond 1146, 350°F (177°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	6200 (42.8)
	75°F (24°C)	6000 (41.4)
	250°F (121°C)	3500 (24.1)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	35 (6.1)
	75°F (24°C)	75 (13.1)
	250°F (121°C)	60 (10.5)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	Metlbond 1146M, 0.060 lb/ft ² (293 gsm) adhesive cured 90 minutes at 350°F (177°C) under 40psi (275 kPa) pressure	

Table 10 | Mechanical Properties with Metlbond 1515-3M, 350°F (177°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	4600 (31.7)
	75°F (24°C)	4600 (31.7)
	350°F (177°C)	1700 (11.7)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	14 (2.5)
	75°F (24°C)	24 (4.2)
Metal-to-Metal climbing Drum Peel, pli (Nm/m)	75°F (24°C)	21 (93)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	Metlbond 1515-3M, 0.05 lb/ft ² (244 gsm) adhesive cured 90 minutes at 350°F (177°C) under 40psi (275 kPa) pressure	

Table 11 | Mechanical Properties with FM[®] 300, 350°F (177°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	-67°F (-55°C)	5500 (31.7)
	75°F (24°C)	6000(31.7)
	350°F (177°C)	1700 (11.7)
Floating Roller Peel, pli (kN/m)	-67°F (-55°C)	14 (2.5)
	75°F (24°C)	35 (4.2)
Metal-to-Metal climbing Drum Peel, pli (Nm/m)	75°F (24°C)	35 (93)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	FM 300, 0.05 lb/ft ² (244 gsm) adhesive cured 90 minutes at 350°F (177°C) under 40psi (275 kPa) pressure	

> BR[®] 6747-1 BONDING PRIMER

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Table 12 | Mechanical Properties with FM[®] 377S, 350°F (177°C) Cure Adhesive

Test Type	Test Temperature	Result
Lap Shear, psi (MPa)	75°F (24°C)	4160 (28.7)
	250°F (121°C)	3450 (23.8)
	350°F (177°C)	2150 (14.8)
Metal-to-Metal climbing Drum Peel, pli (Nm/m)	75°F (24°C)	24 (142)
Metal	2024-T3 bare aluminum, surface treatment: FPL + PAA	
Adhesive	FM 377S, 0.080 lb/ft ² (390 gsm) adhesive cured 90 minutes at 350°F (177°C) under 40psi (275 kPa) pressure	

PROCESSING AND APPLICATION

Primer Storage

BR 6747-1 may be stored at temperatures from 40°F to 55°F (4.5°C to 12.8°C) for up to 12 months, from 56°F to 75°F (13°C to 24°C) for up to 6 months and from 76°F to 90°F (24°C to 32°C) for up to 30 days. Specific care should be taken to prevent BR 6747-1 from freezing or from being exposed to temperatures below 32°F (0°C) and above 90°F (32°C)

Mixing

It is not necessary to warm the container to room temperature before opening. Thoroughly mix BR 6747-1 upon opening and agitate during application. **NOTE:** During transportation and storage conditions the primer has a layer of soft settling solids at the bottom of the can. It will take more mechanical force to disperse the solids from the bottom if the settling is densely packed. To increase mixing efficiency, we recommend using mixing beads to aid agitation or using a mechanical propeller blade to disperse the settling solids before putting into a shaker or roller machine.

Surface Preparation

A clean, dry, grease-free surface is required for bonding. BR 6747-1 is used with all standard cleaning techniques involving solvent degreasing, alkaline cleaning, surface abrading, chemical deoxidizing, alodining and/or anodizing. General guidance can be found in ASTM D2651.

Best results for aluminum are obtained by a four step procedure of solvent degreasing, alkaline cleaning, chemical deoxidizing (etching) and phosphoric acid anodizing*. Phosphoric acid anodizing is now being used by a large number of aircraft manufacturers due to the improved surface bond durability it provides.

Equipment

BR 6747-1 may be sprayed using a variety of equipment including hand-held, automated, conventional air-atomizing, HVLP or electrostatic spray equipment. Parts may be racked for spray and cured in any position convenient for the process. Refer to Tables 15 and 16 for specific equipment set-up recommendations.

*Boeing patent 4,085,012. April 1978.

BR[®] 6747-1 BONDING PRIMER

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Primer Thickness

A primer thickness of 0.0002 to 0.0003 inches (0.005 to 0.008 mm) is recommended for optimum mechanical properties and corrosion resistance [full range: 0.00015 – 0.00035 inches (0.004 to .009 mm)]. The primer should be applied using two to three thin box coats (4 – 6 cross coats) to obtain the final film thickness. Additional coats of primer may be sprayed and cured onto previously cured areas without loss of properties.

Spraying

For uniform coating, apply one thin coat of primer to cover the entire part and allow to dry completely (primed part color will change to lighter yellow when dry). Then spray additional box coats on top to achieve the desired primer thickness. Allow 30 to 60 seconds drying between each box coat.

Spray Gun Cleaning

If using a gun in which a solvent-based material has been used, the spray gun must be rinsed and sprayed for at least 1 minute with deionized water prior to loading the gun with BR 6747-1 primer. Clean the gun immediately after use by rinsing and spraying with deionized water.

Dry Time

15 to 60 minutes at 75°F (24°C) and less than 55% relative humidity is recommended.

Primer Cure Cycle

Dry primer coatings should be cured at 250°F ± 10°F (121°C ± 5.5°C) for 60 minutes to obtain a surface which is scratch and MEK wipe resistant. Assemblies primed with BR 6747-1 and then cured can be stored for six months and longer without degradation of the final bond strength. Assemblies that have been primed and cured should be protected from dust and oil by wrapping in protective sheeting such as Kraft paper. Stored assemblies should be wiped with a suitable solvent prior to bonding.

Bonding Cycles

BR 6747-1 may be used with most epoxy based thermoset adhesives that cure between 250°F and 350°F (121°C and 177°C). Primed details may be exposed to up to three 60 minute 250°F (121°C) cure cycles with no significant loss of primer properties.

> BR[®] 6747-1 BONDING PRIMER

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Spray Gun Settings

Table 12 | Settings for Accuspray Spray Gun (HVLP) Series 10

Fan Adjustment	1 counter-clockwise turn
Fluid control (needle adjustment screw)	2 counter-clockwise turns
Needle size	0.036"
Air cap model	#11
Cup pressure	4 psi
Atomization pressure	6 psi
Spraying distance (nozzle to panel)	14" – 16"
Room temperature	70° – 90°F
Humidity	< 65%
Air supply pressure	Minimum 80 psi

Table 13 | Settings for Devilbiss Spray Gun (HVLP) Model JGHV-531

Fan Adjustment	1 counter-clockwise turn
Fluid control (needle adjustment screw)	1/2 – 3/4 counter-clockwise turns
Needle size	0.034"
Air cap model	46 MP
Cup pressure	4 psi
Atomization pressure	38 psi
Spraying distance (nozzle to panel)	14" – 16"
Room temperature	70° – 90°F
Humidity	< 65%
Air supply pressure	Minimum 80 psi

> BR[®] 6747-1 BONDING PRIMER

TECHNICAL DATA SHEET

PRODUCT HANDLING AND SAFETY

Refer to Materials Safety Data Sheets (MSDS) and product labels.

DISPOSAL OF SCRAP MATERIAL

Disposal of scrap material must be in accordance with local, state, and federal regulations.

CONTACT INFORMATION

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Safety Data Sheet

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Transportation version number: 9.01 (13/02/2018)			

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

3M™ Scotch-Weld™ Structural Adhesive Primer EC-3960

Product Identification Numbers

62-3960-6540-1	62-3960-7550-9	62-3960-8550-8
7100003347	7000046549	7100078277

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Industrial use.

1.3. Details of the supplier of the safety data sheet

Address:	3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone:	+44 (0)1344 858 000
E Mail:	tox.uk@mmm.com
Website:	www.3M.com/uk

1.4. Emergency telephone number

+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:

Flammable Liquid, Category 2 - Flam. Liq. 2; H225
Serious Eye Damage/Eye Irritation, Category 2 - Eye Irrit. 2; H319
Skin Sensitization, Category 1 - Skin Sens. 1; H317
Carcinogenicity, Category 1B - Carc. 1B; H350
Specific Target Organ Toxicity-Single Exposure, Category 3 - STOT SE 3; H336
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

2.2. Label elements

CLP REGULATION (EC) No 1272/2008

SIGNAL WORD

DANGER.

Symbols:

GHS02 (Flame) | GHS07 (Exclamation mark) | GHS08 (Health Hazard) | GHS09 (Environment) |

Pictograms



Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
Butanone	78-93-3	201-159-0	40 - 60
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3		2 - 10
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4		1 - 5
Formaldehyde, oligomeric reaction products with phenol	9003-35-4	500-005-2	0.1 - 1
Strontium Chromate (VI)	7789-06-2	232-142-6	< 1

HAZARD STATEMENTS:

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P210A	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261A	Avoid breathing vapours.
P280E	Wear protective gloves.

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.
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SUPPLEMENTAL INFORMATION

3M™ Scotch-Weld™ Structural Adhesive Primer EC-3960**Supplemental Hazard Statements:**

EUH066

Repeated exposure may cause skin dryness or cracking.

Supplemental Precautionary Statements:

Restricted to professional users.

21% of the mixture consists of components of unknown acute inhalation toxicity.

Contains 11% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
Butanone	78-93-3	201-159-0	01- 2119457290- 43	40 - 60	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336; EUH066
4-Hydroxy-4-methylpentan-2-one	123-42-2	204-626-7	01- 2119473975- 21	10 - 30	Eye Irrit. 2, H319
Tetrahydrofuran	109-99-9	203-726-8	01- 2119444314- 46	10 - 30	Flam. Liq. 2, H225; EUH019; Eye Irrit. 2, H319; Carc. 2, H351; STOT SE 3, H335
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3			2 - 10	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; Aquatic Acute 1, H400,M=1; Aquatic Chronic 2, H411
Non-Hazardous Ingredients	Mixture			1 - 5	Substance not classified as hazardous
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4			1 - 5	Skin Sens. 1, H317
1-Methoxypropan-2-ol	107-98-2	203-539-1		1 - 5	Flam. Liq. 3, H226; STOT SE 3, H336
Formaldehyde, oligomeric reaction products with phenol	9003-35-4	500-005-2		0.1 - 1	Skin Sens. 1, H317
Methanol	67-56-1	200-659-6		< 1	Flam. Liq. 2, H225; Acute Tox. 3, H331; Acute Tox. 3, H311; Acute Tox. 3, H301; STOT SE 1, H370
Strontium Chromate (VI)	7789-06-2	232-142-6		< 1	Acute Tox. 4, H302; Carc. 1B, H350; Aquatic Acute 1, H400,M=10; Aquatic Chronic 1, H410,M=10; Acute Tox. 2, H330; Skin Sens. 1, H317; Muta. 2, H341; Repr. 2, H361df; STOT SE 3, H335
Acetone	67-64-1	200-662-2		< 1	Flam. Liq. 2, H225; Eye Irrit.

3M™ Scotch-Weld™ Structural Adhesive Primer EC-3960

					2, H319; STOT SE 3, H336; EUH066
Barium Chromate	10294-40-3	233-660-5		< 0.1	Nota A Carc. 1B, H350i; STOT RE 1, H372; Aquatic Acute 1, H400,M=10; Aquatic Chronic 1, H410,M=1
Formaldehyde	50-00-0	200-001-8		< 0.1	Acute Tox. 2, H330; Acute Tox. 3, H311; Acute Tox. 3, H301; Skin Corr. 1B, H314; Skin Sens. 1A, H317; Muta. 2, H341; Carc. 1B, H350; STOT SE 3, H335 - Nota B,D

Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures**4.1. Description of first aid measures****Inhalation**

Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye contact

Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If swallowed

Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

See Section 11.1 Information on toxicological effects

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures**5.1. Extinguishing media**

In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

5.2. Special hazards arising from the substance or mixture

Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products**Substance**

Aldehydes.

Carbon monoxide.

Condition

During combustion.

During combustion.

Carbon dioxide.

During combustion.

5.3. Advice for fire-fighters

Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapours in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up

Contain spill. Cover spill area with a fire-extinguishing foam. An appropriate aqueous film forming foam (AFFF) is recommended. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a metal container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections

Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling

For industrial or professional use only. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Wear low static or properly grounded shoes. Use personal protective equipment (eg. gloves, respirators...) as required. To minimize the risk of ignition, determine applicable electrical classifications for the process using this product and select specific local exhaust ventilation equipment to avoid flammable vapour accumulation. Ground/bond container and receiving equipment if there is potential for static electricity accumulation during transfer.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store away from heat. Store away from acids. Store away from oxidising agents.

7.3. Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and

personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Chromium (hexavalent compounds)	10294-40-3	UK HSC	TWA(as Cr):0.05 mg/m ³	Respiratory Sensitizer
1-Methoxypropan-2-ol	107-98-2	UK HSC	TWA: 375 mg/m ³ (100 ppm); STEL: 560 mg/m ³ (150 ppm)	SKIN
Tetrahydrofuran	109-99-9	UK HSC	TWA: 150 mg/m ³ (50 ppm); STEL: 300 mg/m ³ (100 ppm)	SKIN
4-Hydroxy-4-methylpentan-2-one	123-42-2	UK HSC	TWA: 241 mg/m ³ (50 ppm); STEL: 362 mg/m ³ (75 ppm)	
Formaldehyde	50-00-0	UK HSC	TWA:2.5 mg/m ³ (2 ppm);STEL:2.5 mg/m ³ (2 ppm)	
Methanol	67-56-1	UK HSC	TWA:266 mg/m ³ (200 ppm);STEL:333 mg/m ³ (250 ppm)	SKIN
Acetone	67-64-1	UK HSC	TWA:1210 mg/m ³ (500 ppm);STEL:3620 mg/m ³ (1500 ppm)	
Chromium (hexavalent compounds)	7789-06-2	UK HSC	TWA(as Cr):0.05 mg/m ³	Respiratory Sensitizer
Butanone	78-93-3	UK HSC	TWA: 600 mg/m ³ (200 ppm); STEL: 899 mg/m ³ (300 ppm)	SKIN

UK HSC : UK Health and Safety Commission

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

Biological limit values

Ingredient	CAS Nbr	Agency	Determinant	Biological Specimen	Sampling Time	Value	Additional comments
Chromium (hexavalent compounds)	10294-40-3	UK EH40 BMGVs	Chromium	Creatinine in urine	EOS	10 umol/mol	
Chromium (hexavalent compounds)	7789-06-2	UK EH40 BMGVs	Chromium	Creatinine in urine	EOS	10 umol/mol	
Butanone	78-93-3	UK EH40 BMGVs	Butan-2-one	Urine	EOS	70 umol/L	

UK EH40 BMGVs : UK. EH40 Biological Monitoring Guidance Values (BMGVs)

EOS: End of shift.

Derived no effect level (DNEL)

Ingredient	Degradation Product	Population	Human exposure pattern	DNEL
Butanone		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	1,161 mg/kg bw/d
Butanone		Worker	Inhalation, Long-term	600 mg/m ³

			exposure (8 hours), Systemic effects	
Tetrahydrofuran		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	25 mg/kg bw/d
Tetrahydrofuran		Worker	Inhalation, Long-term exposure (8 hours), Local effects	150 mg/m ³
Tetrahydrofuran		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	150 mg/m ³
Tetrahydrofuran		Worker	Inhalation, Short-term exposure, Local effects	300 mg/m ³
Tetrahydrofuran		Worker	Inhalation, Short-term exposure, Systemic effects	300 mg/m ³

Predicted no effect concentrations (PNEC)

Ingredient	Degradation Product	Compartment	PNEC
Butanone		Agricultural soil	22.5 mg/kg d.w.
Butanone		Freshwater	55.8 mg/l
Butanone		Freshwater sediments	284.7 mg/kg d.w.
Butanone		Intermittent releases to water	55.8 mg/l
Butanone		Marine water	55.8 mg/l
Butanone		Marine water sediments	284.7 mg/kg d.w.
Butanone		Sewage Treatment Plant	709 mg/l
Tetrahydrofuran		Agricultural soil	2.13 mg/kg d.w.
Tetrahydrofuran		Freshwater	4.32 mg/l
Tetrahydrofuran		Freshwater sediments	23.3 mg/kg d.w.
Tetrahydrofuran		Intermittent releases to water	21.6 mg/l
Tetrahydrofuran		Marine water	0.432 mg/l
Tetrahydrofuran		Sewage Treatment Plant	4.6 mg/l

8.2. Exposure controls

In addition, refer to the annex for more information.

8.2.1. Engineering controls

Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment. Use explosion-proof ventilation equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Full face shield.

Indirect vented goggles.

Applicable Norms/Standards

Use eye/face protection conforming to EN 166

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity. Gloves made from the following material(s) are recommended:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	No data available	No data available

Applicable Norms/Standards

Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards

Use a respirator conforming to EN 140 or EN 136

Use a respirator conforming to EN 140 or EN 136: filter types A & P

8.2.3. Environmental exposure controls

Refer to Annex

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Appearance/Odour	yellow, sweet/sharp odour.
Odour threshold	No data available.
pH	Not applicable.
Boiling point/boiling range	>=66 °C
Melting point	Not applicable.
Flammability (solid, gas)	Not applicable.
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	-14.4 °C [Test Method: Closed Cup]
Autoignition temperature	321 °C [Details: THF]
Flammable Limits(LEL)	1.8 % volume
Flammable Limits(UEL)	11.8 % volume
Vapour pressure	<=21,598.2 Pa [@ 25 °C]
Relative density	0.88 [Ref Std: WATER=1]
Water solubility	Slight (less than 10%)

Solubility- non-water	<i>No data available.</i>
Partition coefficient: n-octanol/water	<i>No data available.</i>
Evaporation rate	≥ 2 [Ref Std:ETHER=1]
Vapour density	2.5 [Ref Std:AIR=1]
Decomposition temperature	<i>No data available.</i>
Viscosity	10 mPa-s [@ 23 °C]
Density	0.88 g/ml

9.2. Other information

EU Volatile Organic Compounds

*No data available.***SECTION 10: Stability and reactivity****10.1 Reactivity**

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

Heat.

Sparks and/or flames.

10.5 Incompatible materials

Strong oxidising agents.

10.6 Hazardous decomposition products**Substance****Condition**

None known.

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from 3M assessments.

11.1 Information on Toxicological effects**Signs and Symptoms of Exposure**

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation

Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause additional health effects (see below).

Skin contact

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Prolonged or repeated exposure may cause:

Dermal Defatting: Signs/symptoms may include localised redness, itching, drying and cracking of skin.

Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching. May cause additional health effects (see below).

Eye contact

Corrosive (eye burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Ingestion

May be harmful if swallowed.

Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:**Single exposure may cause target organ effects:**

Central nervous system (CNS) depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Vapour(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE 2,000 - 5,000 mg/kg
Butanone	Dermal	Rabbit	LD50 > 8,050 mg/kg
Butanone	Inhalation-Vapour (4 hours)	Rat	LC50 34.5 mg/l
Butanone	Ingestion	Rat	LD50 2,737 mg/kg
4-Hydroxy-4-methylpentan-2-one	Dermal	Rabbit	LD50 13,645 mg/kg
4-Hydroxy-4-methylpentan-2-one	Ingestion	Rat	LD50 4,000 mg/kg
Tetrahydrofuran	Dermal	Rat	LD50 > 2,000 mg/kg
Tetrahydrofuran	Inhalation-Vapour (4 hours)	Rat	LC50 54 mg/l
Tetrahydrofuran	Ingestion	Rat	LD50 3,180 mg/kg
Bisphenol A diglycidyl ether - bisphenol A copolymer	Dermal	Rat	LD50 > 1,600 mg/kg
Bisphenol A diglycidyl ether - bisphenol A copolymer	Ingestion	Rat	LD50 > 1,000 mg/kg
1-Methoxypropan-2-ol	Dermal	Rabbit	LD50 11,000-13,800 mg/kg
1-Methoxypropan-2-ol	Inhalation-Vapour (4 hours)	Rat	LC50 56 mg/l
1-Methoxypropan-2-ol	Ingestion	Rat	LD50 6,100 mg/kg
Phenol-formaldehyde polymer, glycidyl ether	Dermal	Rabbit	LD50 > 6,000 mg/kg
Phenol-formaldehyde polymer, glycidyl ether	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 1.7 mg/l

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Phenol-formaldehyde polymer, glycidyl ether	Ingestion	Rat	LD50 > 4,000 mg/kg
Strontium Chromate (VI)	Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
Strontium Chromate (VI)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.27 mg/l
Strontium Chromate (VI)	Ingestion	Rat	LD50 3,118 mg/kg
Methanol	Dermal		LD50 estimated to be 1,000 - 2,000 mg/kg
Methanol	Inhalation-Vapour		LC50 estimated to be 10 - 20 mg/l
Methanol	Ingestion		LD50 estimated to be 50 - 300 mg/kg
Formaldehyde, oligomeric reaction products with phenol	Dermal	Rat	LD50 > 2,000 mg/kg
Formaldehyde, oligomeric reaction products with phenol	Ingestion	Rat	LD50 > 2,900 mg/kg
Acetone	Dermal	Rabbit	LD50 > 15,688 mg/kg
Acetone	Inhalation-Vapour (4 hours)	Rat	LC50 76 mg/l
Acetone	Ingestion	Rat	LD50 5,800 mg/kg
Formaldehyde	Dermal	Rabbit	LD50 270 mg/kg
Formaldehyde	Inhalation-Gas (4 hours)	Rat	LC50 470 ppm
Formaldehyde	Ingestion	Rat	LD50 800 mg/kg
Barium Chromate	Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
Barium Chromate	Ingestion	Rat	LD50 3,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Butanone	Rabbit	Minimal irritation
4-Hydroxy-4-methylpentan-2-one	Rabbit	No significant irritation
Tetrahydrofuran	Rabbit	Minimal irritation
Bisphenol A diglycidyl ether - bisphenol A copolymer	Rabbit	Mild irritant
1-Methoxypropan-2-ol	Not available	Minimal irritation
Phenol-formaldehyde polymer, glycidyl ether	Rabbit	Minimal irritation
Strontium Chromate (VI)	Professional judgement	Mild irritant
Methanol	Rabbit	Mild irritant
Formaldehyde, oligomeric reaction products with phenol	Human and animal	Mild irritant
Acetone	Mouse	Minimal irritation
Formaldehyde	official classification	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Butanone	Rabbit	Severe irritant
4-Hydroxy-4-methylpentan-2-one	Rabbit	Severe irritant
Tetrahydrofuran	Rabbit	Corrosive
Bisphenol A diglycidyl ether - bisphenol A copolymer	Rabbit	Moderate irritant
1-Methoxypropan-2-ol	Not available	Mild irritant
Phenol-formaldehyde polymer, glycidyl ether	Rabbit	Mild irritant
Strontium Chromate (VI)	Rabbit	Mild irritant
Methanol	Rabbit	Moderate irritant
Formaldehyde, oligomeric reaction products with phenol	Human and animal	Moderate irritant

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Acetone	Rabbit	Severe irritant
Formaldehyde	official classification	Corrosive

Skin Sensitisation

Name	Species	Value
Tetrahydrofuran	Human and animal	Not classified
Bisphenol A diglycidyl ether - bisphenol A copolymer	Human and animal	Sensitising
1-Methoxypropan-2-ol	Guinea pig	Not classified
Phenol-formaldehyde polymer, glycidyl ether	Human and animal	Sensitising
Strontium Chromate (VI)	similar compounds	Sensitising
Methanol	Guinea pig	Not classified
Formaldehyde, oligomeric reaction products with phenol	Human and animal	Sensitising
Formaldehyde	Guinea pig	Sensitising
Barium Chromate	similar compounds	Not classified

Respiratory Sensitisation

Name	Species	Value
Bisphenol A diglycidyl ether - bisphenol A copolymer	Human	Not classified
Formaldehyde, oligomeric reaction products with phenol	Human	Not classified
Formaldehyde	Human	Some positive data exist, but the data are not sufficient for classification

Germ Cell Mutagenicity

Name	Route	Value
Butanone	In Vitro	Not mutagenic
4-Hydroxy-4-methylpentan-2-one	In Vitro	Some positive data exist, but the data are not sufficient for classification
Tetrahydrofuran	In Vitro	Not mutagenic
Tetrahydrofuran	In vivo	Not mutagenic
Bisphenol A diglycidyl ether - bisphenol A copolymer	In vivo	Not mutagenic
Bisphenol A diglycidyl ether - bisphenol A copolymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
1-Methoxypropan-2-ol	In Vitro	Not mutagenic
Phenol-formaldehyde polymer, glycidyl ether	In Vitro	Some positive data exist, but the data are not sufficient for classification
Strontium Chromate (VI)	In vivo	Mutagenic
Methanol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Methanol	In vivo	Some positive data exist, but the data are not sufficient for classification
Acetone	In vivo	Not mutagenic
Acetone	In Vitro	Some positive data exist, but the data are not sufficient for classification
Formaldehyde	In Vitro	Some positive data exist, but the data are not sufficient for classification

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Formaldehyde	In vivo	Mutagenic
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Carcinogenicity

Name	Route	Species	Value
Butanone	Inhalation	Human	Not carcinogenic
Tetrahydrofuran	Inhalation	Multiple animal species	Carcinogenic.
Bisphenol A diglycidyl ether - bisphenol A copolymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
1-Methoxypropan-2-ol	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Strontium Chromate (VI)	Not specified.	similar compounds	Carcinogenic.
Methanol	Inhalation	Multiple animal species	Not carcinogenic
Acetone	Not specified.	Multiple animal species	Not carcinogenic
Formaldehyde	Not specified.	Human and animal	Carcinogenic.
Barium Chromate	Not specified.	similar compounds	Carcinogenic.

Reproductive Toxicity**Reproductive and/or Developmental Effects**

Name	Route	Value	Species	Test result	Exposure Duration
Butanone	Inhalation	Not classified for development	Rat	LOAEL 8.8 mg/l	during gestation
4-Hydroxy-4-methylpentan-2-one	Ingestion	Not classified for female reproduction	Rat	NOAEL 300 mg/kg/day	premating & during gestation
4-Hydroxy-4-methylpentan-2-one	Ingestion	Not classified for male reproduction	Rat	NOAEL 300 mg/kg/day	premating & during gestation
4-Hydroxy-4-methylpentan-2-one	Ingestion	Not classified for development	Rat	NOAEL 300 mg/kg/day	premating & during gestation
Tetrahydrofuran	Ingestion	Not classified for female reproduction	Rat	NOAEL 782 mg/kg/day	2 generation
Tetrahydrofuran	Ingestion	Not classified for male reproduction	Rat	NOAEL 782 mg/kg/day	2 generation
Tetrahydrofuran	Ingestion	Not classified for development	Rat	NOAEL 305 mg/kg/day	2 generation
Tetrahydrofuran	Inhalation	Not classified for development	Mouse	NOAEL 1.8 mg/l	during gestation
Bisphenol A diglycidyl ether - bisphenol A copolymer	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A diglycidyl ether - bisphenol A copolymer	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A diglycidyl ether - bisphenol A copolymer	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Bisphenol A diglycidyl ether - bisphenol A copolymer	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
1-Methoxypropan-2-ol	Inhalation	Not classified for male reproduction	Rat	NOAEL 11 mg/l	2 generation
1-Methoxypropan-2-ol	Ingestion	Not classified for female reproduction	Mouse	NOAEL 3,328 mg/kg/day	2 generation

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1-Methoxypropan-2-ol	Inhalation	Not classified for female reproduction	Rat	NOAEL 3.7 mg/l	2 generation
1-Methoxypropan-2-ol	Ingestion	Not classified for male reproduction	Mouse	NOAEL 3,328 mg/kg	2 generation
1-Methoxypropan-2-ol	Ingestion	Not classified for development	Rat	NOAEL 370 mg/kg	during gestation
1-Methoxypropan-2-ol	Inhalation	Not classified for development	Rat	NOAEL 3.7 mg/l	2 generation
Strontium Chromate (VI)	Ingestion	Toxic to female reproduction	similar compounds	NOAEL Not available	
Strontium Chromate (VI)	Ingestion	Toxic to male reproduction	similar compounds	NOAEL Not available	
Strontium Chromate (VI)	Ingestion	Toxic to development	similar compounds	NOAEL Not available	
Methanol	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,600 mg/kg/day	21 days
Methanol	Ingestion	Toxic to development	Mouse	LOAEL 4,000 mg/kg/day	during organogenesis
Methanol	Inhalation	Toxic to development	Mouse	NOAEL 1.3 mg/l	during organogenesis
Acetone	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,700 mg/kg/day	13 weeks
Acetone	Inhalation	Not classified for development	Rat	NOAEL 5.2 mg/l	during organogenesis
Formaldehyde	Ingestion	Not classified for male reproduction	Rat	NOAEL 100 mg/kg	not applicable
Formaldehyde	Inhalation	Not classified for development	Rat	NOAEL 10 ppm	during gestation
Barium Chromate	Not specified.	Not classified for reproduction and/or development	similar compounds	NOAEL Not available	prematings & during gestation

Target Organ(s)
Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Butanone	Inhalation	central nervous system depression	May cause drowsiness or dizziness	official classification	NOAEL Not available	
Butanone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Butanone	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
Butanone	Ingestion	liver	Not classified	Rat	NOAEL Not available	not applicable
Butanone	Ingestion	kidney and/or bladder	Not classified	Rat	LOAEL 1,080 mg/kg	not applicable
4-Hydroxy-4-methylpentan-2-one	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
4-Hydroxy-4-methylpentan-2-one	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
4-Hydroxy-4-methylpentan-2-one	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
4-Hydroxy-4-	Ingestion	blood	Some positive data exist, but the	Rat	LOAEL	not applicable

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methylpentan-2-one			data are not sufficient for classification		1,882 mg/kg	
4-Hydroxy-4-methylpentan-2-one	Ingestion	liver	Not classified	Rat	NOAEL 1,882 mg/kg	not applicable
Tetrahydrofuran	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Tetrahydrofuran	Inhalation	respiratory irritation	May cause respiratory irritation		NOAEL Not available	
Tetrahydrofuran	Inhalation	respiratory system	Not classified	Rabbit	NOAEL 2.9 mg/l	4 hours
Tetrahydrofuran	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Rat	NOAEL 180 mg/kg	not applicable
1-Methoxypropan-2-ol	Dermal	central nervous system depression	Not classified	Rabbit	NOAEL 1,800 mg/kg	13 weeks
1-Methoxypropan-2-ol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Strontium Chromate (VI)	Inhalation	respiratory irritation	May cause respiratory irritation	similar compounds	NOAEL Not available	
Strontium Chromate (VI)	Ingestion	kidney and/or bladder	Causes damage to organs	similar compounds	NOAEL Not available	
Methanol	Inhalation	blindness	Causes damage to organs	Human	NOAEL Not available	occupational exposure
Methanol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	not available
Methanol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	6 hours
Methanol	Ingestion	blindness	Causes damage to organs	Human	NOAEL Not available	poisoning and/or abuse
Methanol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Formaldehyde, oligomeric reaction products with phenol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human and animal	NOAEL Not available	
Acetone	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Acetone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Acetone	Inhalation	immune system	Not classified	Human	NOAEL 1.19 mg/l	6 hours
Acetone	Inhalation	liver	Not classified	Guinea pig	NOAEL Not available	
Acetone	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Formaldehyde	Inhalation	respiratory system	Causes damage to organs	Rat	LOAEL 128 ppm	6 hours
Formaldehyde	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Butanone	Dermal	nervous system	Not classified	Guinea pig	NOAEL Not available	31 weeks
Butanone	Inhalation	liver kidney and/or bladder heart endocrine system gastrointestinal tract bone, teeth, nails, and/or hair hematopoietic system immune system muscles	Not classified	Rat	NOAEL 14.7 mg/l	90 days

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Butanone	Ingestion	liver	Not classified	Rat	NOAEL Not available	7 days
Butanone	Ingestion	nervous system	Not classified	Rat	NOAEL 173 mg/kg/day	90 days
4-Hydroxy-4-methylpentan-2-one	Inhalation	blood liver kidney and/or bladder	Not classified	Rat	NOAEL 4.5 mg/l	6 weeks
4-Hydroxy-4-methylpentan-2-one	Ingestion	endocrine system blood liver kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	44 days
Tetrahydrofuran	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.6 mg/l	12 weeks
Tetrahydrofuran	Inhalation	respiratory system	Not classified	Rat	NOAEL 2.9 mg/l	12 weeks
Tetrahydrofuran	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 0.6 mg/l	105 weeks
Tetrahydrofuran	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	2 weeks
Bisphenol A diglycidyl ether - bisphenol A copolymer	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Bisphenol A diglycidyl ether - bisphenol A copolymer	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Bisphenol A diglycidyl ether - bisphenol A copolymer	Ingestion	auditory system heart endocrine system hematopoietic system liver eyes kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
1-Methoxypropan-2-ol	Dermal	kidney and/or bladder	Not classified	Rabbit	NOAEL 1,800 mg/kg/day	13 weeks
1-Methoxypropan-2-ol	Dermal	hematopoietic system	Not classified	Rabbit	NOAEL 1,000 mg/kg/day	3 weeks
1-Methoxypropan-2-ol	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 3.7 mg/l	13 weeks
1-Methoxypropan-2-ol	Inhalation	liver	Not classified	Rat	NOAEL 11 mg/l	13 weeks
1-Methoxypropan-2-ol	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 2.2 mg/l	10 days
1-Methoxypropan-2-ol	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 920 mg/kg/day	13 weeks
1-Methoxypropan-2-ol	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 920 mg/kg/day	13 weeks
Strontium Chromate (VI)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	similar compounds	NOAEL Not available	
Strontium Chromate (VI)	Ingestion	kidney and/or bladder	May cause damage to organs through prolonged or repeated exposure	similar compounds	NOAEL Not available	
Methanol	Inhalation	liver	Not classified	Rat	NOAEL 6.55 mg/l	4 weeks
Methanol	Inhalation	respiratory system	Not classified	Rat	NOAEL 13.1 mg/l	6 weeks
Methanol	Ingestion	liver nervous system	Not classified	Rat	NOAEL 2,500 mg/kg/day	90 days
Formaldehyde, oligomeric reaction products with phenol	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
Acetone	Dermal	eyes	Not classified	Guinea pig	NOAEL Not available	3 weeks
Acetone	Inhalation	hematopoietic	Not classified	Human	NOAEL 3	6 weeks

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		system			mg/l	
Acetone	Inhalation	immune system	Not classified	Human	NOAEL 1.19 mg/l	6 days
Acetone	Inhalation	kidney and/or bladder	Not classified	Guinea pig	NOAEL 119 mg/l	not available
Acetone	Inhalation	heart liver	Not classified	Rat	NOAEL 45 mg/l	8 weeks
Acetone	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 900 mg/kg/day	13 weeks
Acetone	Ingestion	heart	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Acetone	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 200 mg/kg/day	13 weeks
Acetone	Ingestion	liver	Not classified	Mouse	NOAEL 3,896 mg/kg/day	14 days
Acetone	Ingestion	eyes	Not classified	Rat	NOAEL 3,400 mg/kg/day	13 weeks
Acetone	Ingestion	respiratory system	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Acetone	Ingestion	muscles	Not classified	Rat	NOAEL 2,500 mg/kg	13 weeks
Acetone	Ingestion	skin bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 11,298 mg/kg/day	13 weeks
Formaldehyde	Dermal	respiratory system	Not classified	Mouse	NOAEL 80 mg/kg/day	60 weeks
Formaldehyde	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 0.3 ppm	28 months
Formaldehyde	Inhalation	liver	Not classified	Rat	NOAEL 20 ppm	13 weeks
Formaldehyde	Inhalation	hematopoietic system	Not classified	Mouse	NOAEL 15 ppm	3 weeks
Formaldehyde	Inhalation	nervous system	Not classified	Mouse	NOAEL 10 ppm	13 weeks
Formaldehyde	Inhalation	endocrine system immune system muscles kidney and/or bladder	Not classified	Rat	NOAEL 15 ppm	28 months
Formaldehyde	Inhalation	gastrointestinal tract	Not classified	Rat	NOAEL 15 ppm	2 years
Formaldehyde	Inhalation	eyes vascular system	Not classified	Rat	NOAEL 14.3 ppm	2 years
Formaldehyde	Inhalation	heart	Not classified	Mouse	NOAEL 14.3 ppm	2 years
Formaldehyde	Ingestion	liver	Not classified	Rat	NOAEL 300 mg/kg/day	2 years
Formaldehyde	Ingestion	immune system	Not classified	Rat	NOAEL 20 mg/kg/day	4 weeks
Formaldehyde	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 15 mg/kg/day	24 months
Formaldehyde	Ingestion	nervous system	Not classified	Rat	NOAEL 109 mg/kg/day	2 years
Formaldehyde	Ingestion	heart endocrine system hematopoietic system respiratory system vascular system	Not classified	Rat	NOAEL 300 mg/kg/day	2 years
Formaldehyde	Ingestion	skin muscles eyes	Not classified	Rat	NOAEL 109 mg/kg/day	2 years
Barium Chromate	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	similar compounds	NOAEL Not available	occupational exposure

Aspiration Hazard

For the component/components, either no data is currently available or the data is not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
Butanone	78-93-3	Green algae	Experimental	96 hours	EC50	2,029 mg/l
Butanone	78-93-3	Fathead minnow	Experimental	96 hours	LC50	2,993 mg/l
Butanone	78-93-3	Water flea	Experimental	48 hours	EC50	308 mg/l
Butanone	78-93-3	Green Algae	Experimental	96 hours	Effect Concentration 10%	1,289 mg/l
Butanone	78-93-3	Water flea	Experimental	21 days	NOEC	100 mg/l
4-Hydroxy-4-methylpentan-2-one	123-42-2	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
4-Hydroxy-4-methylpentan-2-one	123-42-2	Bluegill	Experimental	96 hours	LC50	420 mg/l
4-Hydroxy-4-methylpentan-2-one	123-42-2	Water flea	Experimental	48 hours	EC50	>1,000 mg/l
4-Hydroxy-4-methylpentan-2-one	123-42-2	Inland Silverside	Experimental	96 hours	LC50	420 mg/l
4-Hydroxy-4-methylpentan-2-one	123-42-2	Water flea	Experimental	21 days	NOEC	>100 mg/l
4-Hydroxy-4-methylpentan-2-one	123-42-2	Green algae	Experimental	72 hours	NOEC	1,000 mg/l
Tetrahydrofuran	109-99-9	Water flea	Experimental	48 hours	LC50	3,485 mg/l
Tetrahydrofuran	109-99-9	Fathead minnow	Experimental	96 hours	LC50	2,160 mg/l
Tetrahydrofuran	109-99-9	Fathead minnow	Experimental	33 days	NOEC	216 mg/l
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Green algae	Estimated	72 hours	EC50	>11 mg/l
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Rainbow trout	Estimated	96 hours	LC50	1.2 mg/l
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Water flea	Estimated	48 hours	LC50	0.95 mg/l
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Green algae	Estimated	72 hours	NOEC	4.2 mg/l
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Water flea	Estimated	21 days	NOEC	0.3 mg/l

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1-Methoxypropan-2-ol	107-98-2	Algae other	Experimental	72 hours	EC50	6,745 mg/l
1-Methoxypropan-2-ol	107-98-2	Golden Orfe	Experimental	96 hours	LC50	6,812 mg/l
1-Methoxypropan-2-ol	107-98-2	Green algae	Experimental	96 hours	EC50	>1,000 mg/l
1-Methoxypropan-2-ol	107-98-2	Water flea	Experimental	48 hours	EC50	23,300 mg/l
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4		Data not available or insufficient for classification			
Acetone	67-64-1	Crustacea other	Experimental	24 hours	LC50	2,100 mg/l
Acetone	67-64-1	Algae other	Experimental	96 hours	EC50	11,493 mg/l
Acetone	67-64-1	Rainbow trout	Experimental	96 hours	LC50	5,540 mg/l
Acetone	67-64-1	Water flea	Experimental	21 days	NOEC	1,000 mg/l
Methanol	67-56-1	Water flea	Experimental	24 hours	EC50	20,803 mg/l
Methanol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	EC50	16.9 mg/l
Methanol	67-56-1	Bluegill	Experimental	96 hours	LC50	15,400 mg/l
Methanol	67-56-1	Green Algae	Experimental	96 hours	EC50	22,000 mg/l
Methanol	67-56-1	Water flea	Experimental	21 days	NOEC	122 mg/l
Methanol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	NOEC	9.96 mg/l
Formaldehyde, oligomeric reaction products with phenol	9003-35-4		Data not available or insufficient for classification			
Strontium Chromate (VI)	7789-06-2	Rainbow trout	Estimated	96 hours	LC50	2.23 mg/l
Strontium Chromate (VI)	7789-06-2	Water flea	Estimated	48 hours	EC50	0.08 mg/l
Barium Chromate	10294-40-3	Water flea	Estimated	48 hours	EC50	0.04 mg/l
Formaldehyde	50-00-0	Fish other	Experimental	96 hours	LC50	6.7 mg/l
Formaldehyde	50-00-0	Water flea	Experimental	48 hours	EC50	5.8 mg/l
Formaldehyde	50-00-0	Green algae	Experimental	72 hours	EC50	4.89 mg/l
Formaldehyde	50-00-0	Ricefish	Experimental	28 days	NOEC	>=48 mg/l
Formaldehyde	50-00-0	Water flea	Experimental	21 days	NOEC	>=6.4 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Butanone	78-93-3	Experimental Biodegradation	28 days	BOD	98 % BOD/ThBOD	OECD 301D - Closed bottle test
4-Hydroxy-4-methylpentan-2-one	123-42-2	Experimental Biodegradation	14 days	BOD	90 % weight	OECD 301C - MITI test (I)
Tetrahydrofuran	109-99-9	Experimental Biodegradation	28 days	BOD	39 % BOD/ThBOD	Other methods
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Estimated Hydrolysis		Hydrolytic half-life	<2 days (t 1/2)	
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Estimated Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301C - MITI test (I)

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1-Methoxypropan-2-ol	107-98-2	Experimental Biodegradation	28 days	BOD	90 % BOD/ThBOD	OECD 301C - MITI test (I)
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Laboratory Biodegradation	28 days	CO2 evolution	10 % weight	OECD 301B - Modified sturm or CO2
Acetone	67-64-1	Experimental Photolysis		Photolytic half-life (in air)	147 days (t 1/2)	Other methods
Acetone	67-64-1	Experimental Biodegradation	28 days	BOD	78 % weight	OECD 301D - Closed bottle test
Methanol	67-56-1	Experimental Biodegradation	14 days	BOD	92 % BOD/ThBOD	OECD 301C - MITI test (I)
Formaldehyde, oligomeric reaction products with phenol	9003-35-4	Data not availbl-insufficient			N/A	
Strontium Chromate (VI)	7789-06-2	Data not availbl-insufficient			N/A	
Barium Chromate	10294-40-3	Data not availbl-insufficient			N/A	
Formaldehyde	50-00-0	Experimental Photolysis		Photolytic half-life(in water)	1-2 hours (t 1/2)	Other methods
Formaldehyde	50-00-0	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	99 % weight	OECD 301A - DOC Die Away Test

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Butanone	78-93-3	Experimental Bioconcentration		Log Kow	0.29	Other methods
4-Hydroxy-4-methylpentan-2-one	123-42-2	Experimental Bioconcentration		Log Kow	-0.14	Other methods
Tetrahydrofuran	109-99-9	Experimental Bioconcentration		Log Kow	0.45	Other methods
Bisphenol A diglycidyl ether - bisphenol A copolymer	25036-25-3	Estimated BCF - Carp	28 days	Bioaccumulation factor	≤42	OECD 305E - Bioaccumulation flow-through fish test
1-Methoxypropan-2-ol	107-98-2	Experimental Bioconcentration		Log Kow	-0.437	Other methods
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Estimated Bioconcentration		Bioaccumulation factor	≤7.6	Estimated: Bioconcentration factor
Acetone	67-64-1	Experimental Bioconcentration		Log Kow	-0.24	Other methods
Methanol	67-56-1	Experimental Bioconcentration		Log Kow	-0.77	Other methods
Formaldehyde, oligomeric reaction products with phenol	9003-35-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Strontium Chromate (VI)	7789-06-2	Estimated BCF - Other		Bioaccumulation factor	610-3400	Other methods
Barium Chromate	10294-40-3	Estimated BCF - Other	40 days	Bioaccumulation factor	2650	Other methods
Formaldehyde	50-00-0	Experimental Bioconcentration		Log Kow	0.35	Other methods

12.4. Mobility in soil

Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Other adverse effects

Material	CAS Nbr	Ozone Depletion Potential	Global Warming Potential
acetone	67-64-1	0	

SECTION 13: Disposal considerations

13.1 Waste treatment methods

See Section 11.1 Information on toxicological effects

Incinerate in a permitted waste incineration facility. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)

08 04 09* Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27* Paint, inks, adhesives and resins containing dangerous substances

SECTION 14: Transportation information

62-3960-6540-1, 62-3960-7550-9

Component 1

ADR/RID: UN1263, PAINT, 3., II, (D/E), ADR Classification Code: F1.

IMDG-CODE: UN1263, PAINTS, 3, II, IMDG-Code segregation code: NONE, EMS: FE,SE.

ICAO/IATA: UN1263, PAINTS, 3., II.

Component 2

ADR/RID: UN1845, CARBON DIOXID, SOLID, AS COOLANT, --.

IMDG-CODE: UN1845, CARBON DIOXIDE, SOLID, (DRY ICE), AS COOLANT(FORBIDDEN FOR SEA EXCEPT FOR SHORT EUROPEAN FERRYCROSSINGS), 9., IMDG-Code segregation code: NONE, longer distance allowed in Reefer Container, EMS: FC,SV.

ICAO/IATA: UN1845, CARBON DIOXIDE, SOLID, 9..

62-3960-8550-8

ADR/RID: UN1263, PAINT, 3., II, (D/E), ADR Classification Code: F1.

IMDG-CODE: UN1263, PAINTS, 3, II, IMDG-Code segregation code: NONE, EMS: FE,SE.

ICAO/IATA: UN1263, PAINTS, 3., II.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Carcinogenicity

<u>Ingredient</u>	<u>CAS Nbr</u>	<u>Classification</u>	<u>Regulation</u>
Barium Chromate	10294-40-3	Carc. 1B	3M classified according to Regulation (EC) No 1272/2008
Formaldehyde	50-00-0	Carc. 1B	Regulation (EC) No.

Formaldehyde	50-00-0	Grp. 1: Carcinogenic to humans	1272/2008, Table 3.1 International Agency for Research on Cancer
Strontium Chromate (VI)	7789-06-2	Carc. 1B	Regulation (EC) No. 1272/2008, Table 3.1
Tetrahydrofuran	109-99-9	Carc. 2	Regulation (EC) No. 1272/2008, Table 3.1
Tetrahydrofuran	109-99-9	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Global inventory status

Contact 3M for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the chemical notification requirements of TSCA.

15.2. Chemical Safety Assessment

SECTION 16: Other information

List of relevant H statements

EUH019	May form explosive peroxides.
EUH066	Repeated exposure may cause skin dryness or cracking.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H350i	May cause cancer by inhalation.
H351	Suspected of causing cancer.
H361df	Suspected of damaging fertility. Suspected of damaging the unborn child.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Revision information:

Industrial Application of Coatings: Section 16: Annex information was deleted.

Industrial Use of Coatings: Section 16: Annex information was added.

Section 12: Component ecotoxicity information information was modified.

Section 12: No PBT/vPvB information available warning information was modified.

Section 12: Persistence and Degradability information information was modified.

Section 15: Chemical Safety Assessment information was deleted.

Annex

1. Title	
Substance identification	Tetrahydrofuran; EC No. 203-726-8; CAS Nbr 109-99-9;
Exposure Scenario Name	Industrial Use of Coatings
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 07 -Industrial spraying PROC 09 -Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC 10 -Roller application or brushing PROC 15 -Use a laboratory reagent ERC 04 -Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Processes, tasks and activities covered	Application of product with a roller or brush. Application of product. Spraying of substances/mixtures. Transfer of substances/mixtures into small containers e.g. tubes , bottles or small reservoirs.
2. Operational conditions and risk management measures	
Operating Conditions	Physical state: Liquid. General operating conditions: Assumes use at not more than 20°C above ambient temperature; Duration of use: 8 hours/day;
Risk management measures	Under the operational conditions described above the following risk management measures apply: General risk management measures: Human health: Provide extract ventilation to points where emissions occur; Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; Environmental: None needed; ; The following task-specific risk management measures apply in addition to those listed above: Task: PROC07; Human Health; Laminar Flow Booth; Half-facepiece air-purifying respirator;
Waste management measures	No use-specific waste management measures are required for this product. Refer to Section 13 of main SDS for disposal instructions:
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	Butanone; EC No. 201-159-0; CAS Nbr 78-93-3;
Exposure Scenario Name	Industrial Use of Coatings
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 07 -Industrial spraying PROC 08a -Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC 08b -Transfer of substance or mixture (charging and discharging) at

	dedicated facilities PROC 09 -Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC 10 -Roller application or brushing PROC 13 -Treatment of articles by dipping and pouring PROC 15 -Use a laboratory reagent ERC 04 -Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Processes, tasks and activities covered	Application of product with a roller or brush. Application of product. Spraying of substances/mixtures. Transfer of substance/mixture with dedicated engineering controls. Transfer of substances/mixtures into small containers e.g. tubes , bottles or small reservoirs. Transfers with dedicated controls, including loading, filling, dumping, bagging. Use as a laboratory reagent.
2. Operational conditions and risk management measures	
Operating Conditions	Physical state: Liquid. General operating conditions: Assumes use at not more than 20°C above ambient temperature; Duration of use: 8 hours/day; Emission days per year: <= 100 days per year;
Risk management measures	Under the operational conditions described above the following risk management measures apply: General risk management measures: Human health: Provide extract ventilation to points where emissions occur; Environmental: None needed; ; The following task-specific risk management measures apply in addition to those listed above: Task: Spraying; Human Health; Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour); Laminar Flow Booth; Half-facepiece air-purifying respirator;
Waste management measures	No use-specific waste management measures are required for this product. Refer to Section 13 of main SDS for disposal instructions:
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

3M United Kingdom MSDSs are available at www.3M.com/uk

Aerospace Technical Data Sheet

3M™ Scotch-Weld™ EC-3960

Structural Adhesive Primer

Product Description

3M™ Scotch-Weld™ Structural Adhesive Primer EC-3960 is a sprayable corrosion inhibiting adhesive primer. It provides a high degree of protection against corrosive environments both inside and outside the adhesive bondline. It is suggested for use with 3M Scotch-Weld™ Bonding Films.

Key Features

- Capable of high transfer efficiency (less overspray waste)
- Provides corrosion protection inside and outside the bondline
- Provides long term durability to bonded joints
- Protects etched and anodized substrates for long term storage
- When cured at 121°C provides a solvent resistant coating

Can be co-cured with adhesive at 125°C & 175°C



Product Characterization

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

General Properties	Material
Colour	Yellow
Base	Epoxy resin
Solvent	Solvent blend
Net weight	0.87 Kg / l
Flash point	-14°C
Consistency	Thin liquid
Solids content	10.5 ± 1.0 %
Pencil hardness	6H (minimum)
MEK Resistance	Resistant

Product Performance

The following product performance data were obtained under the conditions specified

1. Metal to Metal –T-Peel, Floating roller peel, Climbing Drum peel, Overlap Shear

All data reported in this section is typical obtained on EC-3960 primed aluminium surfaces. Substrate, 2024-T3 Bare aluminium. Prior to priming, the metal was etched per ASTM D 2651. Where noted, the etch was followed by PAA Phosphoric chromic acid anodization per ASTM 3933. After primer application, dry 30 minutes at 23°C and cured 40 minutes (inserted into hot oven). Then the bonds were assembled and cured for 75 minutes at 121 °C for the 3M™ Scotch-Weld™ Film Adhesive AF 126 2 (.060Lbs/ft²). Ramp up 2.8 °C / minute, Pressure 206KPa in autoclave.

Treatment	Primer Cure temp.	Primer Thickness	T-Peel	Beel peel	Climbing Drum peel	Overlap Shear Strength			
	0°C	µm	N/25mm.	N/25mm	In-Lb/in mN/m	MPa			
Test temp.			24°C	24°C	24°C	-55°C	24°C	82°C	121°C
FPL	121	7	178	178	84 -374	41.3	42	21.3	6.5
PAA	121	3.8	178	356	92-409	43.1	45.1	21.3	8.2
PAA	121	7	178	222	93-414	43.4	44.4	20.6	6.8
PAA	121	9	178	222	87-387	42.4	44.8	21.7	7.2
PAA	121	7	178	267	90-400	41.3	44.4	20.6	7.2
PAA	121	9	178	356	85-378	42.4	44.8	21.3	7.2

2. Metal to Metal –Wide Area Shear, Metal to Metal climbing drum peel

All data reported in this section is typical obtained on EC-3960 primed aluminium surfaces. Substrate, 2024-T3 Alclad aluminium. Prior to priming, the metal was etched per ASTM D 2651 followed by PAA Phosphoric chromic acid anodization per ASTM 3933. After primer application, cured 60 minutes at 121°C. Then the bonds were assembled and cured for 90 minutes at 112 °C for the 3M™ Scotch-Weld™ Film Adhesive AF 163-2K (.060Lbs/ft²).

Wide Area Shear	Typical Performance MPa
-55°C	33.3
23°C	34.9
121°C	16.6

Metal to metal C. Drum peel	Typical Performance in.lb/in.
23°C	80

Handling, Application, Storage

Precautionary Information

See product Label and Material Data Sheet for health and safety information before using this product.

Instructions for use

The product performance data were developed using the following suggested procedures

Process step	Instruction																				
Surface preparation	<p>A thoroughly cleaned, dry, grease-free surface is essential for maximum performance. Cleaning methods which will produce a breakfree water film on metal surfaces are generally satisfactory. Surface preparation should be fully evaluated with the adhesive, especially if resistance to specific environments is anticipated.</p> <ol style="list-style-type: none"> 1) Alkaline Degrease- Oakite 164 solution 67.4 – 82.4 g / liter at 87 ± 5.6 °C for 10-20 minutes. Rinse immediately in large quantities of cold running water. 2) Acid FPL Etch Solution (1 liter) <table> <tr> <th>Material</th><th>Amount</th></tr> <tr> <td>Distilled Water</td><td>700 ml plus balance of liter (see below)</td></tr> <tr> <td>Sodium Dichromate</td><td>28 to 67.3 grams</td></tr> <tr> <td>Sulfuric Acid</td><td>287.9 to 310.0 grams</td></tr> <tr> <td>Aluminium Chips</td><td>1.5 grams / liter of mixed solution</td></tr> </table> <p>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. Dissolve 1.5 grams of 2024 bare aluminium chips per liter of mixed solution. Gentle agitation will help aluminium dissolve in about 24 hours.</p> <p>Note: Review and follows safety and health information provided by suppliers of these materials prior to preparation of this solution.</p> <p>To FPL etch panels; place them in the above solution at 66 to 71 °C for 12 to 15 minutes.</p> 3) Rinse- Rinse panels in clear running water. 4) Dry- Air dry 15 minutes; force dry 10 minutes at 71 °C 5) It is advisable to coat the freshly cleaned surfaces with EC-3960 within four (4) hours after surface preparation. 6) Care should be taken to avoid contaminating the cleaned aluminium by any substance which will hinder the wetting action of EC-3960 primer. 	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	Aluminium Chips	1.5 grams / liter of mixed solution										
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																				
Aluminium Chips	1.5 grams / liter of mixed solution																				
Application	<p>EC-3960 has been design for spray application. Prior to use, EC-3960 primer must be warmed to ambient temperature and thoroughly agitated to redispense the corrosion inhibitors witch settle upon storage. Agitation of small container on vibration shaker for approximately 5 minutes is suggested. Agitation should also be provided during application.</p> <p><u>Primer application</u></p> <p>The following spray procedure is suggested for evaluation to obtain optimum results. Stir well before and during use.</p> <table> <tr> <td>Spray Gun</td><td>Binks No. 62</td></tr> <tr> <td>Air Cap</td><td>66SD</td></tr> <tr> <td>Fluid Tip and Needle</td><td>66-365</td></tr> <tr> <td>Cup Pressure</td><td>O, Siphon Feed</td></tr> <tr> <td>Line Pressure</td><td>2 to 2.5 bars</td></tr> <tr> <td>Fan Adjustment</td><td>Wide open</td></tr> <tr> <td>Fluid adjustment</td><td>One turn open</td></tr> <tr> <td>Distance from Panel</td><td>150-300 mm</td></tr> <tr> <td>Primer Thickness</td><td>0.5 - 4 micron</td></tr> <tr> <td>Primer Weight</td><td>140-420 mg / sq. ft.</td></tr> </table> <p>Primer thickness & tolerance (0.5µ to 2µ) is important to be followed, to achieve best peel performance.</p> <p><u>Primer clean up</u></p> <p>Excess primer and equipment may be cleaned up prior to curing with Ketone type solvent*</p> <p><u>Primer dry and cure</u></p>	Spray Gun	Binks No. 62	Air Cap	66SD	Fluid Tip and Needle	66-365	Cup Pressure	O, Siphon Feed	Line Pressure	2 to 2.5 bars	Fan Adjustment	Wide open	Fluid adjustment	One turn open	Distance from Panel	150-300 mm	Primer Thickness	0.5 - 4 micron	Primer Weight	140-420 mg / sq. ft.
Spray Gun	Binks No. 62																				
Air Cap	66SD																				
Fluid Tip and Needle	66-365																				
Cup Pressure	O, Siphon Feed																				
Line Pressure	2 to 2.5 bars																				
Fan Adjustment	Wide open																				
Fluid adjustment	One turn open																				
Distance from Panel	150-300 mm																				
Primer Thickness	0.5 - 4 micron																				
Primer Weight	140-420 mg / sq. ft.																				

A. Primer Bake cycle (cure) 30 minutes at 24°C following by 60 minutes at 121°C+/-5°C

Cure at 150°C during 60 minute, is also possible to achieve best peel performance

For optimum long term adhesive bond durability, uses bake cycle.

The Primed surface should be protected from contamination.

If extended periods of storage are necessary, wrap the part in unplasticized Kraft paper.

If the primed surface is contaminated with dust, it may be cleaned prior to bonding by wiping clean unsized cheesecloth moistened with methyl ethyl Ketone*.

B. Primer Air dry Cycle 2 hours at 24°C (minimum)

Note: use of EC-3960 Primer without a force dry is not recommended with AF163-2 films and is subject to strict limitations. Contact 3M technical Service representative if additional information is required.

*Note: When using solvents for cleanup, be sure to follow the manufacturer's precautions and directions for use for handling such materials.

Storage

Stored New shipment behind older lots. EC-3960 Primer must be shipped and stored at -18°C or lower. Rotate stock on a "first-in – first-out" basis.

Caution: Primer should be permitted to thoroughly warm to room temperature before being used in order to prevent moisture condensation.

3M Standard shelf life of EC-3960 primer is 6 months from date of shipment from 3M when stored at -18°C or below in its original unopened container

Further Information

For additional information on this product contact your local 3M Aerospace Sales Representative or visit our homepage at www.3m.com/aerospace.

Important notice: All statements, technical information and recommendations in this data sheet are based on tests 3M believes to be reliable, but the accuracy or completeness of those tests is not guaranteed. All technical data and information should be considered typical or representative only and should not be used for specification purposes. Given the variety of factors that affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product before use to determine the suitability of the 3M product for the intended use and method of application. All questions of liability relating to the 3M product are governed by the terms of the sale subject to, where applicable, the prevailing law.



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