

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name: Two-Component Aerosol Coating- Mil-PRF-23377 Type II Class II

(Contd. of page 1)

· **Hazard pictograms**



GHS02 GHS05 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Benzyl alcohol

butan-1-ol

3-aminomethyl-3,5,5-trimethylcyclohexylamine

N-(3-(trimethoxysilyl)propyl)ethylenediamine

2,2'-iminodiethylamine

reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)

· **Hazard statements**

H222 Extremely flammable aerosol.

H302+H332 Harmful if swallowed or if inhaled.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

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

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P211 Do not spray on an open flame or other ignition source.

P251 Pressurized container: Do not pierce or burn, even after use.

P260 Do not breathe spray.

P280 Wear protective gloves / eye protection.

P285 In case of inadequate ventilation wear respiratory protection.

P302+P352 If on skin: Wash with plenty of water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 4

Reactivity = 3

· **HMIS-ratings (scale 0 - 4)**



*Health = *3*

Fire = 4

Reactivity = 3

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** *Not applicable.*

· **vPvB:** *Not applicable.*

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 2)

· Dangerous components:		
CAS: 115-10-6 EINECS: 204-065-8 Index number: 603-019-00-8	dimethyl ether ⚠ Flam. Gas 1, H220 ⚠ Press. Gas, H280	75-≤100%
CAS: 100-51-6 EINECS: 202-859-9 Index number: 603-057-00-5	Benzyl alcohol ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	2.5-<5%
CAS: 540-88-5 EINECS: 208-760-7 Index number: 607-026-00-7	tert-butyl acetate ⚠ Flam. Liq. 2, H225	2.5-<5%
CAS: 71-36-3 EINECS: 200-751-6 Index number: 603-004-00-6	butan-1-ol ⚠ Flam. Liq. 3, H226 ⚠ Eye Dam. 1, H318 ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336	<2.5%
CAS: 2855-13-2 EINECS: 220-666-8 Index number: 612-067-00-9	3-aminomethyl-3,5,5-trimethylcyclohexylamine ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317	<2.5%
CAS: 78-93-3 EINECS: 201-159-0 Index number: 606-002-00-3	butanone ⚠ Flam. Liq. 2, H225 ⚠ Eye Irrit. 2A, H319; STOT SE 3, H336	<2.5%
CAS: 1760-24-3 EINECS: 217-164-6	N-(3-(trimethoxysilyl)propyl)ethylenediamine ⚠ STOT RE 2, H373 ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Skin Sens. 1, H317; STOT SE 3, H335	≤0.5%

4 First-aid measures

· Description of first aid measures

· General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· After inhalation:

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

· After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

· After swallowing:

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· Information for doctor:

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

· Extinguishing media

· Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire fighting measures that suit the environment.

· Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

· Advice for firefighters -

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 3)

· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

115-10-6	dimethyl ether	3,000 ppm
100-51-6	Benzyl alcohol	30 ppm
540-88-5	tert-butyl acetate	600 ppm
71-36-3	butan-1-ol	60 ppm
78-93-3	butanone	200 ppm
112926-00-8	Precipitated silica (Silica-Amorphous)	18 mg/m ³
1760-24-3	N-(3-(trimethoxysilyl)propyl)ethylenediamine	23 mg/m ³
111-40-0	2,2'-iminodiethylamine	3 ppm
25068-38-6	reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	90 mg/m ³

· **PAC-2:**

115-10-6	dimethyl ether	3800* ppm
100-51-6	Benzyl alcohol	52 ppm
540-88-5	tert-butyl acetate	1,700 ppm
71-36-3	butan-1-ol	800 ppm
78-93-3	butanone	2700* ppm
112926-00-8	Precipitated silica (Silica-Amorphous)	200 mg/m ³
1760-24-3	N-(3-(trimethoxysilyl)propyl)ethylenediamine	250 mg/m ³
111-40-0	2,2'-iminodiethylamine	8.5 ppm
25068-38-6	reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	990 mg/m ³

· **PAC-3:**

115-10-6	dimethyl ether	7200* ppm
100-51-6	Benzyl alcohol	740 ppm
540-88-5	tert-butyl acetate	10,000 ppm
71-36-3	butan-1-ol	8000** ppm
78-93-3	butanone	4000* ppm
112926-00-8	Precipitated silica (Silica-Amorphous)	1,200 mg/m ³
1760-24-3	N-(3-(trimethoxysilyl)propyl)ethylenediamine	1,500 mg/m ³
111-40-0	2,2'-iminodiethylamine	51 ppm

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

25068-38-6	reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)
------------	---

(Contd. of page 4)

5,900 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Storage class:** 2 B
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

115-10-6 dimethyl ether

WEEL Long-term value: 1000 ppm

100-51-6 Benzyl alcohol

WEEL Long-term value: 10 ppm

540-88-5 tert-butyl acetate

PEL Long-term value: 950 mg/m³, 200 ppmREL Long-term value: 950 mg/m³, 200 ppmTLV Short-term value: 712 mg/m³, 150 ppm
Long-term value: 238 mg/m³, 50 ppm

71-36-3 butan-1-ol

PEL Long-term value: 300 mg/m³, 100 ppmREL Ceiling limit value: 150 mg/m³, 50 ppm
SkinTLV Long-term value: 61 mg/m³, 20 ppm

78-93-3 butanone

PEL Long-term value: 590 mg/m³, 200 ppmREL Short-term value: 885 mg/m³, 300 ppm
Long-term value: 590 mg/m³, 200 ppmTLV Short-term value: 885 mg/m³, 300 ppm
Long-term value: 590 mg/m³, 200 ppm
BEI

- **Ingredients with biological limit values:**

78-93-3 butanone

BEI 2 mg/L
Medium: urine
Time: end of shift
Parameter: MEK

(Contd. on page 6)

Trade name:

(Contd. of page 5)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Avoid contact with the eyes.

· **Breathing equipment:**

Filter A2/P3



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

· **Material of gloves**

Butyl rubber, BR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

Butyl rubber gloves with a thickness of 0.4 mm are resistant to:

Acetone: 480 min

Butyl acetate: 60 min

Ethyl acetate: 170 min

Xylene: 42 min

Butyl rubber gloves with a thickness of 0.4 mm are solvent resistant for 42- 480 minutes. As protective measure, we recommend that users and responsible persons for work safety assume solvent resistance length of 42 minutes. Considering the data in section 3 of this SDS, one can assume longer resistance length in particular cases.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:

Aerosol

Color:

According to product specification

· **Odor:**

Characteristic

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

Melting point/Melting range:

Undetermined.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 6)

Boiling point/Boiling range:	Not applicable, as aerosol.
Flash point:	Not applicable, as aerosol.
Flammability (solid, gaseous):	Not applicable.
Ignition temperature:	240 °C (464 °F)
Decomposition temperature:	Not determined.
Danger of explosion:	Not determined.
Explosion limits:	
Lower:	3.3 Vol %
Upper:	26.2 Vol %
Vapor pressure at 20 °C (68 °F):	4000 hPa (3000.2 mm Hg)
Density:	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not applicable.
Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Organic solvents:	93.6 %
Water:	0.0 %
VOC content:	936.8 g/l / 7.82 lb/gal
Solids content:	13.7 %
Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

100-51-6 Benzyl alcohol

Inhalative	LC50 / 4h	4.178 mg/l (rat)
------------	-----------	------------------

71-36-3 butan-1-ol

Oral	LD50	2292 mg/kg (rat)
------	------	------------------

Dermal	LD50	3430 mg/kg (rabbit)
--------	------	---------------------

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 7)

Inhalative	LC50 / 4 h	17000 mg/m ³ (rat)
78-93-3 butanone		
Oral	LD50	>2193 mg/kg (rat)
Dermal	LD50	>5000 mg/kg (rabbit)
Inhalative	LC50 / 4 h	34 mg/m ³ (rat)

- **Primary irritant effect:**

- **on the skin:** Caustic effect on skin and mucous membranes.

- **on the eye:**

- Strong caustic effect.

- Strong irritant with the danger of severe eye injury.

- **Sensitization:** Sensitization possible through skin contact.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

112926-00-8 | Precipitated silica (Silica-Amorphous)

3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

115-10-6 dimethyl ether

EC50 / 96 h | 155 mg/l (algae)

LC50 / 48 h | >4000 mg/l (daphnia magna)

LC50 / 96 h | >4000 mg/l (fish)

71-36-3 butan-1-ol

LC50 / 96 h | 1376 mg/l (fish)

78-93-3 butanone

LC50 / 48 h | 308 mg/l (daphnia magna)

LC50 / 72 h | 1972 mg/l (Pseudokirchneriella Subcapitata)

LC50 / 96 h | 2990 mg/l (fish)

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 8)

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Contains epoxy constituents. See information supplied by the manufacturer.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
Do not spray on a naked flame or any incandescent material.
Buildup of explosive mixtures possible without sufficient ventilation.

14 Transport information

- | | |
|----------------------------------|---------------------|
| · UN-Number | |
| · DOT, IMDG, IATA | UN1950 |
| · UN proper shipping name | |
| · DOT | Aerosols, flammable |
| · IMDG | AEROSOLS |
| · IATA | AEROSOLS, flammable |

· **Transport hazard class(es)**

· **DOT**



- | | |
|----------------|-----|
| · Class | 2.1 |
| · Label | 2.1 |

· **IMDG, IATA**



- | | |
|----------------|-----|
| · Class | 2.1 |
| · Label | 2.1 |

· **Packing group**

- | | |
|--------------------------|---------------|
| · DOT, IMDG, IATA | not regulated |
|--------------------------|---------------|

- | | |
|---------------------------------|-----------------|
| · Environmental hazards: | Not applicable. |
|---------------------------------|-----------------|

- | | |
|--|--|
| · Special precautions for user | Warning: Gases |
| · Hazard identification number (Kemler code): | - |
| · EMS Number: | F-D,S-U |
| · Stowage Code | SW1 Protected from sources of heat.
SW2 Clear of living quarters. |
| · Segregation Code | SG69 For AEROSOLS with a maximum capacity of 1 litre:
Segregation as for class 9. Stow "separated from" class 1 |

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 9)

	<p>except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2.</p>
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 75 kg On cargo aircraft only: 150 kg
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 1950 AEROSOLS, 2.1

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

71-36-3 butan-1-ol

· **TSCA (Toxic Substances Control Act):**

115-10-6	dimethyl ether	ACTIVE
100-51-6	Benzyl alcohol	ACTIVE
540-88-5	tert-butyl acetate	ACTIVE
71-36-3	butan-1-ol	ACTIVE
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	ACTIVE
78-93-3	butanone	ACTIVE
1760-24-3	N-(3-(trimethoxysilyl)propyl)ethylenediamine	ACTIVE
111-40-0	2,2'-iminodiethylamine	ACTIVE
25068-38-6	reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	ACTIVE
7732-18-5	water, distilled, conductivity or of similar purity	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 10)

· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.

· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
71-36-3 butan-1-ol	D
78-93-3 butanone	I

· TLV (Threshold Limit Value established by ACGIH)
None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H220 Extremely flammable gas.

H225 Highly flammable liquid and vapor.

H226 Flammable liquid and vapor.

H280 Contains gas under pressure; may explode if heated.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

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

· **Date of preparation / last revision** 03/02/2020 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Gas 1: Flammable gases – Category 1

Flam. Aerosol 1: Aerosols – Category 1

Press. Gas: Gases under pressure – Compressed gas

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2020

Reviewed on 03/02/2020

Trade name:

(Contd. of page 11)

Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

USA