

ARALDITE® 2053-15 A

Version 1.0 Revision Date: 06/03/2021 SDS Number: 400000011046 Date of last issue: -
Date of first issue: 06/03/2021

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SECTION 1. IDENTIFICATION

Product name : ARALDITE® 2053-15 A

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Non-Emergency: (800) 257-5547
E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Resin

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Flammable liquids : Category 2
Skin irritation : Category 2
Serious eye damage : Category 1
Skin sensitisation : Category 1
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)
Short-term (acute) aquatic hazard : Category 3
Chronic aquatic toxicity : Category 3

GHS label elementsHazard pictograms : 

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.

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H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.
 H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

: **Prevention:**

P210 Keep away from heat/ sparks/ open flames/ hot surfaces.
 No smoking.
 P233 Keep container tightly closed.
 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.
 P261 Avoid breathing mist or vapours.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing must not be allowed out of
 the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately
 all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air
 and keep comfortable for breathing. Call a POISON CENTER/
 doctor if you feel unwell.
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with
 water for several minutes. Remove contact lenses, if present
 and easy to do. Continue rinsing. Immediately call a POISON
 CENTER/ doctor.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/
 attention.
 P362 Take off contaminated clothing and wash before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or
 alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container
 tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in
 accordance with local, regional, national and international
 regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

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Chemical name	CAS-No.	Concentration (% w/w)
methyl methacrylate	80-62-6	50 - 70
silica, amorphous, fumed, crystalline free	7631-86-9	5 - 10
methacrylic acid	79-41-4	5 - 10
octadecyl methacrylate	32360-05-7	1 - 5
hexadecyl methacrylate	2495-27-4	1 - 5
calcium carbonate	471-34-1	1 - 5
zinc oxide	1314-13-2	1 - 5
Talc (Mg ₃ H ₂ (SiO ₃) ₄)	14807-96-6	0.1 - 1
2,2'-[(4-methylphenyl)imino]bisethanol	3077-12-1	0.1 - 1

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.

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- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing. If potential for exposure exists refer to Section 8 for specific personal protective equipment. Avoid inhalation, ingestion and contact with skin and eyes. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Refer to protective measures listed in sections 7 and 8.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

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- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform
respective authorities.
- Methods and materials for
containment and cleaning up : Neutralize with chalk, alkali solution or ammonia.
Contain spillage, and then collect with non-combustible
absorbent material, (e.g. sand, earth, diatomaceous earth,
vermiculite) and place in container for disposal according to
local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on protection against
fire and explosion : Do not spray on a naked flame or any incandescent material.
Take necessary action to avoid static electricity discharge
(which might cause ignition of organic vapours).
Use only explosion-proof equipment.
Keep away from open flames, hot surfaces and sources of
ignition.
- Advice on safe handling : Use only with adequate ventilation/personal protection.
Provide sufficient air exchange and/or exhaust in work rooms.
For personal protection see section 8.
Keep container closed when not in use.
Avoid formation of aerosol.
Do not breathe vapours or spray mist.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the
application area.
Persons susceptible to skin sensitisation problems or asthma,
allergies, chronic or recurrent respiratory disease should not
be employed in any process in which this mixture is being
used.
- Conditions for safe storage : No smoking.
Keep container tightly closed in a dry and well-ventilated
place.
Containers which are opened must be carefully resealed and
kept upright to prevent leakage.
Observe label precautions.
Keep in properly labelled containers.
- Materials to avoid : Keep away from strong bases.
- Recommended storage
temperature : 36 - 46 °F / 2 - 8 °C
- Further information on
storage stability : Stable under normal conditions.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
methyl methacrylate	80-62-6	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	100 ppm 410 mg/m ³	OSHA Z-1
		TWA	100 ppm 410 mg/m ³	NIOSH REL
silica, amorphous, fumed, crystalline free	7631-86-9	TWA	100 ppm 410 mg/m ³	OSHA P0
		TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m ³ / %SiO ₂ (Silica)	OSHA Z-3
methacrylic acid	79-41-4	TWA	6 mg/m ³ (Silica)	NIOSH REL
		TWA	20 ppm	ACGIH
		TWA	20 ppm 70 mg/m ³	NIOSH REL
zinc oxide	1314-13-2	TWA	20 ppm 70 mg/m ³	OSHA P0
		TWA (Respirable particulate matter)	2 mg/m ³	ACGIH
		STEL (Respirable particulate matter)	10 mg/m ³	ACGIH
		TWA (Fumes)	5 mg/m ³	OSHA Z-1
		TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³	OSHA Z-1
		TWA (Dust)	5 mg/m ³	NIOSH REL
		TWA (Fumes)	5 mg/m ³	NIOSH REL
		ST (Fumes)	10 mg/m ³	NIOSH REL
		C (Dust)	15 mg/m ³	NIOSH REL
		TWA (Total dust)	10 mg/m ³	OSHA P0
		TWA (respirable dust fraction)	5 mg/m ³	OSHA P0

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		TWA (Fumes)	5 mg/m3	OSHA P0
		STEL (Fumes)	10 mg/m3	OSHA P0
calcium carbonate	471-34-1	TWA (Respirable)	5 mg/m3 (Calcium carbonate)	NIOSH REL
		TWA (total)	10 mg/m3 (Calcium carbonate)	NIOSH REL
Talc (Mg3H2(SiO3)4)	14807-96-6	TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
		TWA (Respirable)	2 mg/m3	NIOSH REL
		TWA	0.1 fibres per cubic centimeter	ACGIH
		TWA (Respirable particulate matter)	2 mg/m3	ACGIH
		TWA (respirable dust fraction)	2 mg/m3	OSHA P0

Personal protective equipment

Respiratory protection : Ensure adequate ventilation.
 Suitable respiratory equipment:
 Respirator with a half face mask
 Recommended Filter type:
 Combined particulates and organic vapour type
 Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : Filter type A-P2 (organic vapours, particles)

Hand protection

Material : butyl-rubber
 Material : Ethyl Vinyl Alcohol Laminate (EVAL)
 Break through time : > 8 h

Material : Nitrile rubber
 Break through time : 10 - 480 min

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
 The suitability for a specific workplace should be discussed with the producers of the protective gloves.
 Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

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- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : paste
- Colour : beige
- Odour : acrylic-like
- Odour Threshold : No data is available on the product itself.
- pH : 4
Concentration: 500 g/l
- Melting point/freezing point : No data is available on the product itself.
- Boiling point : No data is available on the product itself.
- Flash point : 50 °F / 10 °C
- Evaporation rate : No data is available on the product itself.
- Flammability (solid, gas) : No data is available on the product itself.
- Flammability (liquids) : No data is available on the product itself.
- Upper explosion limit / Upper flammability limit : No data is available on the product itself.
- Lower explosion limit / Lower flammability limit : No data is available on the product itself.
- Vapour pressure : No data is available on the product itself.
- Relative vapour density : No data is available on the product itself.
- Relative density : No data is available on the product itself.
- Density : 1.04 g/cm³ (77 °F / 25 °C)
- Solubility(ies)
Water solubility : insoluble, immiscible

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Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity
Viscosity, dynamic : 59,000 mPa.s (77 °F / 25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Vapours may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : None known.

Hazardous decomposition products : carbon dioxide
carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 44.08 mg/l
Exposure time: 4 h
Test atmosphere: vapour

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Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Components:**

methyl methacrylate:

Species: Rabbit

Method: OPPTS 870.2500

Result: Skin irritation

silica, amorphous, fumed, crystalline free:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

methacrylic acid:

Species: Rabbit

Assessment: Causes severe burns.

Method: OECD Test Guideline 404

Result: Extremely corrosive and destructive to tissue.

GLP: yes

octadecyl methacrylate:

Result: Skin irritation

hexadecyl methacrylate:

Result: Skin irritation

calcium carbonate:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

zinc oxide:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

2,2'-[(4-methylphenyl)imino]bisethanol:

Species: Rabbit

Assessment: No skin irritation

Method: Other guidelines

Result: No skin irritation

GLP: no

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Serious eye damage/eye irritation**Components:**

silica, amorphous, fumed, crystalline free:

Species: Rabbit

Result: No eye irritation

Assessment: No eye irritation

Method: OECD Test Guideline 405

methacrylic acid:

Species: Rabbit

Result: Irreversible effects on the eye

Assessment: Risk of serious damage to eyes.

Method: Draize Test

GLP: no

octadecyl methacrylate:

Result: Eye irritation

hexadecyl methacrylate:

Result: Eye irritation

calcium carbonate:

Species: Rabbit

Result: No eye irritation

Assessment: No eye irritation

Method: OECD Test Guideline 405

zinc oxide:

Species: Rabbit

Result: No eye irritation

Assessment: No eye irritation

Method: OECD Test Guideline 405

2,2'-[(4-methylphenyl)imino]bisethanol:

Species: Rabbit

Result: Risk of serious damage to eyes.

Assessment: Risk of serious damage to eyes.

Method: OECD Test Guideline 405

GLP: no

Respiratory or skin sensitisation**Components:**

methyl methacrylate:

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: May cause sensitisation by skin contact.

methacrylic acid:

Test Type: Buehler Test

Exposure routes: Skin

Species: Guinea pig

Assessment: Did not cause sensitisation on laboratory animals.

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Method: OECD Test Guideline 406
 Result: Did not cause sensitisation on laboratory animals.

octadecyl methacrylate:
 Exposure routes: Skin
 Species: Mouse
 Method: OECD Test Guideline 429
 Result: Does not cause skin sensitisation.

hexadecyl methacrylate:
 Exposure routes: Skin
 Species: Mouse
 Method: OECD Test Guideline 429
 Result: Does not cause skin sensitisation.

zinc oxide:
 Exposure routes: Skin
 Species: Guinea pig
 Method: OECD Test Guideline 406
 Result: Does not cause skin sensitisation.

2,2'-[(4-methylphenyl)imino]bisethanol:
 Test Type: Local lymph node assay (LLNA)
 Species: Mouse
 Assessment: May cause sensitisation by skin contact.
 Method: OECD Test Guideline 429
 Result: May cause sensitisation by skin contact.
 GLP: yes
 Remarks: Information given is based on data obtained from similar substances.

Assessment: No data available

Germ cell mutagenicity**Components:**

methyl methacrylate:
 Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)
 Test system: Salmonella typhimurium
 Method: OECD Test Guideline 471
 Result: negative

silica, amorphous, fumed, crystalline free:
 Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative

Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative

Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

methacrylic acid:
 Genotoxicity in vitro : Test Type: reverse mutation assay

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Test system: Salmonella typhimurium
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

octadecyl methacrylate:
 Genotoxicity in vitro

: Concentration: .1 - 1200 µg/L
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative

Concentration: 33 - 5000 ug/plate
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

Concentration: 14.5 - 2233 µg/L
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative

hexadecyl methacrylate:
 Genotoxicity in vitro

: Concentration: .1 - 1200 µg/L
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative

Concentration: 33 - 5000 ug/plate
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

Concentration: 14.5 - 2233 µg/L
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative

calcium carbonate:
 Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

Concentration: 0 - 250 µg/L
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative

zinc oxide:
 Genotoxicity in vitro

: Test Type: reverse mutation assay
 Test system: Salmonella typhimurium and E. coli
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

Test Type: Chromosome aberration test in vitro
 Test system: Chinese hamster lung cells

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Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 GLP: yes

Test Type: Micronucleus test
 Metabolic activation: without metabolic activation
 Method: OECD Test Guideline 487
 Result: negative

2,2'-[(4-methylphenyl)imino]bisethanol:

Genotoxicity in vitro : Test Type: reverse mutation assay
 Test system: Salmonella typhimurium
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative
 GLP: no

Test Type: Chromosome aberration test in vitro
 Test system: Human lymphocytes
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative
 GLP: yes
 Remarks: Information given is based on data obtained from similar substances.

Test Type: In vitro mammalian cell gene mutation test
 Test system: mouse lymphoma cells
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative
 GLP: yes
 Remarks: Information given is based on data obtained from similar substances.

Components:

silica, amorphous, fumed, crystalline free:

Genotoxicity in vivo : Application Route: Inhalation
 Dose: 50 mg/m³
 Result: negative

methacrylic acid:

Genotoxicity in vivo : Test Type: in vivo assay
 Species: Rat (male)
 Cell type: Somatic
 Application Route: Inhalation
 Exposure time: 2 h
 Dose: 0.4, 1.6, 2.8 and 4 mg/L
 Method: OECD Test Guideline 475
 Result: Not classified due to inconclusive data.
 GLP: no

Test Type: dominant lethal test
 Species: Mouse (male)
 Application Route: Inhalation
 Exposure time: 6 h

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Dose: 0.405, 4.05 and 36.45 mg/L
Method: OECD Test Guideline 478
Result: negative
GLP: no

octadecyl methacrylate:
Genotoxicity in vivo

: Application Route: Oral
Exposure time: 72 h
Dose: 5000 mg/kg
Method: OECD Test Guideline 474
Result: negative

hexadecyl methacrylate:
Genotoxicity in vivo

: Application Route: Oral
Exposure time: 72 h
Dose: 5000 mg/kg
Method: OECD Test Guideline 474
Result: negative

zinc oxide:
Genotoxicity in vivo

: Test Type: Micronucleus test
Species: Mouse (male)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Dose: 15, 30 and 60 mg/kg bw
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity-
Assessment

: No data available

Carcinogenicity**Components:**

methyl methacrylate:

Species: Rat, male and female
Application Route: Oral
Exposure time: 2 Years
Dose: 6, 60, 2000 ppm
Frequency of Treatment: once daily
NOAEL: 90.3 mg/kg bw/day

Result: negative

silica, amorphous, fumed, crystalline free:

Species: Rat, male and female
Application Route: Oral
Exposure time: 103 weeks
Dose: 1800 - 3200 mg/kg
Frequency of Treatment: 7 daily
Method: OECD Test Guideline 453
Result: negative

methacrylic acid:

Species: Rat, male and female
Application Route: inhalation (vapour)

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Exposure time: 102 weeks
Frequency of Treatment: 5 days/week
NOAEL: >= 2.05 mg/kg body weight

Method: OECD Test Guideline 451

Species: Mouse, male and female
Application Route: inhalation (vapour)
Exposure time: 102 weeks
Dose: ca. 2.05 and 4.1 mg/L
Frequency of Treatment: 5 days/week
LOAEL: ca. 2.05 mg/l

Method: OECD Test Guideline 451

zinc oxide:
Species: Mouse, male and female
Application Route: Oral
Exposure time: 1 year
Dose: 1000 and 5000 ppm Zinc
Frequency of Treatment: daily
NOAEL: > 22,000 mg/kg body weight

Remarks: Information given is based on data obtained from similar substances.

Carcinogenicity - Assessment : No data available

IARC Group 1: Carcinogenic to humans
Talc (Mg₃H₂(SiO₃)₄)

ACGIH Confirmed human carcinogen
Talc (Mg₃H₂(SiO₃)₄)

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP Known to be human carcinogen
Talc (Mg₃H₂(SiO₃)₄)
(Silica, Crystalline (Respirable Size))

Reproductive toxicity**Components:**

methacrylic acid:
Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 150, 450 mg/kg/day
General Toxicity - Parent: No observed adverse effect level:
50 mg/kg body weight
Fertility: No observed adverse effect level F1: 400 mg/kg body weight
Symptoms: Reduced body weight
Method: OECD Test Guideline 416

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GLP: yes

octadecyl methacrylate:

Species: Rat, male and female
 Application Route: Oral
 Dose: >= 1000 milligram per kilogram
 Frequency of Treatment: 7 days/week
 Method: OECD Test Guideline 422
 Result: negative

Species: Rat, male and female
 Application Route: Oral
 Dose: 400 milligram per kilogram
 Frequency of Treatment: 7 days/week
 Method: OECD Test Guideline 416
 Result: negative

hexadecyl methacrylate:

Species: Rat, male and female
 Application Route: Oral
 Dose: >=1000 milligram per kilogram
 Frequency of Treatment: 7 days/week
 Method: OECD Test Guideline 422
 Result: negative

Species: Rat, male and female
 Application Route: Oral
 Frequency of Treatment: 7 days/week
 Method: OECD Test Guideline 416
 Result: negative

zinc oxide:

Test Type: Two-generation study
 Species: Rat, male and female
 Application Route: Oral
 Dose: 7.5/15/30 mg/kg bw/day
 General Toxicity - Parent: Lowest observed adverse effect level: 7.5 mg/kg body weight
 General Toxicity F1: No observed adverse effect level: 15 mg/kg body weight
 Method: OECD Test Guideline 416
 Remarks: Information given is based on data obtained from similar substances.

Components:

methyl methacrylate:
 Effects on foetal
 development

: Species: Rat
 Application Route: Inhalation
 Dose: 99, 304, 1178 ppm
 Teratogenicity: No observed adverse effect concentration F1: 8,300 mg/m³
 Embryo-foetal toxicity: No observed adverse effect concentration F1: 8,300 mg/m³
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

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silica, amorphous, fumed, crystalline free:

Species: Mouse
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,340 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,600 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,350 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

methacrylic acid:

Test Type: Pre-natal
Species: Rat, female
Application Route: Inhalation
Dose: 0, 50, 100, 200 or 300 ppm
Duration of Single Treatment: 14 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level:
200 ppm
Developmental Toxicity: No observed adverse effect level: >=
300 ppm
Embryo-foetal toxicity: No observed adverse effect
concentration F1: 300 ppm
Method: OECD Test Guideline 414
Result: No effects on fertility and early embryonic
development were detected.

Test Type: Pre-natal
Species: Rabbit, male and female
Application Route: Oral
Dose: 50, 150, 450 milligram per kilogram
Duration of Single Treatment: 23 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level:
50 mg/kg body weight
Developmental Toxicity: No observed adverse effect level F1:
450 mg/kg body weight
Result: No effects on fertility and early embryonic
development were detected.

octadecyl methacrylate:

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:

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1,000 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level:
100 ppm
Method: OECD Test Guideline 414
Result: No teratogenic effects

hexadecyl methacrylate:

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,000 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level:
100 ppm
Method: OECD Test Guideline 414
Result: No teratogenic effects

zinc oxide:

Test Type: Pre-natal
Species: Rat
Application Route: inhalation (dust/mist/fume)
Dose: 0.3/1.5/7.5 mg/m³
Duration of Single Treatment: 6 h
General Toxicity Maternal: No observed adverse effect
concentration: 1.5 mg/m³
Developmental Toxicity: No observed adverse effect
concentration: 7.5 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

2,2'-[(4-methylphenyl)imino]bisethanol:

Test Type: Pre-natal
Species: Rat, females
Application Route: Oral
Dose: 60/200/600 milligram per kilogram
Duration of Single Treatment: 15 d
General Toxicity Maternal: No observed adverse effect level:
200 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: >=
600 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes
Remarks: Information given is based on data obtained from
similar substances.

Reproductive toxicity - Assessment : No data available

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STOT - single exposure**Components:**

methyl methacrylate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

methacrylic acid:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

octadecyl methacrylate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

hexadecyl methacrylate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

methyl methacrylate:

Species: Rat, male and female

NOAEL: 124.1 mg/kg

Application Route: oral (drinking water)

Exposure time: 2 years

Number of exposures: daily

Dose: 6, 60, 2000 ppm

silica, amorphous, fumed, crystalline free:

Species: Rat, male and female

NOAEL: 7950 - 8980 mg/kg

Application Route: Ingestion

Exposure time: 4,320 h

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOEC: 4000 - 4500 mg/m³

Application Route: Ingestion

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Test atmosphere: dust/mist
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: OECD Test Guideline 413

methacrylic acid:
Species: Rat, male and female
NOEC: 352 - 1232 mg/m³
Application Route: inhalation (vapour)
Test atmosphere: vapour
Exposure time: 90 d
Number of exposures: 6 h
Dose: 70/352/1232 mg/m³
Subsequent observation period: 5 days/week
Method: OECD Test Guideline 413
GLP: yes

octadecyl methacrylate:
Species: Rat, male and female
NOAEL: 1000 mg/kg
Application Route: Ingestion
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOAEL: 120 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

hexadecyl methacrylate:
Species: Rat, male and female
NOAEL: 1000 mg/kg
Application Route: Ingestion
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOAEL: 120 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

zinc oxide:
Species: Mouse, male and female
NOEL: 3000 ppm
Application Route: Ingestion
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

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Remarks: Information given is based on data obtained from similar substances.

Species: Rat, male
Application Route: inhalation (dust/mist/fume)
Exposure time: 13 weeks 6 h
Number of exposures: 5 days/week
Dose: 0.3, 1.5 and 4.5 mg/m³
Method: OECD Test Guideline 413
GLP: yes

Species: Rat, male and female
LOAEL: 75 mg/kg
Application Route: Dermal
Exposure time: 28 days 6 h
Number of exposures: 5 days/week
Dose: 0, 75, 180, and 360 mg/kg bw/d

2,2'-[(4-methylphenyl)imino]bisethanol:
Species: Rat, male and female
NOAEL: 100 mg/kg
Application Route: Oral
Exposure time: 28 d
Number of exposures: daily
Dose: 100/300/600/1000 mg/kg bw/day
Method: OECD Test Guideline 407
GLP: yes

Remarks: Information given is based on data obtained from similar substances.

Repeated dose toxicity - : No data available
Assessment**Aspiration toxicity**

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

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Neurological effects

No data available

Further information**Product:**

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

methyl methacrylate:

Toxicity to fish : LC50: 191 mg/l
Exposure time: 96 hLC50 (Oncorhynchus mykiss (rainbow trout)): > 79 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: Fish Early-life Stage Toxicity Test

silica, amorphous, fumed, crystalline free:

Toxicity to fish : LL50 (Brachydanio rerio (zebrafish)): > 10,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

methacrylic acid:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 85 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: Fish Acute Toxicity Test
GLP: yes
Remarks: Toxic to aquatic organisms.

calcium carbonate:

Toxicity to fish : LC50: > 56,000 mg/l
Exposure time: 96 hTalc (Mg₃H₂(SiO₃)₄):Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l
Exposure time: 24 h

2,2'-[(4-methylphenyl)imino]bisethanol:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 100 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes

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Test substance: Fresh water
Method: OECD Test Guideline 203
GLP: yes
Remarks: Based on data from similar materials

Components:

methyl methacrylate:

Toxicity to daphnia and other aquatic invertebrates : EC50: 69 mg/l
Exposure time: 48 h

silica, amorphous, fumed, crystalline free:

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): >= 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

methacrylic acid:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 130 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids
GLP: yes

2,2'-[(4-methylphenyl)imino]bisethanol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 48 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Components:

methyl methacrylate:

Toxicity to algae/aquatic plants : EC50: > 110 mg/l
Exposure time: 72 h

silica, amorphous, fumed, crystalline free:

Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): > 10,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

methacrylic acid:

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 45 mg/l

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plants

Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 201
 GLP: yes

NOEC (Selenastrum capricornutum (green algae)): 8.2 mg/l
 Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 201
 GLP: yes

2,2'-[(4-methylphenyl)imino]bisethanol:

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l

Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 201
 GLP: yes

Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l

Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 201
 GLP: yes

Remarks: Based on data from similar materials

Components:

zinc oxide:

M-Factor (Acute aquatic toxicity) : 1

Components:

methacrylic acid:

Toxicity to fish (Chronic toxicity) : NOEC (Brachydanio rerio (zebrafish)): 10 mg/l

Exposure time: 35 d
 Test Type: flow-through test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 210
 GLP: yes

Components:

methyl methacrylate:

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia magna (Water flea)): 37 mg/l
 Exposure time: 21 d

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zinc oxide:
Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability**Components:**

methyl methacrylate:
Biodegradability : Result: Readily biodegradable.
Biodegradation: > 60 %
Exposure time: 28 d

methacrylic acid:
Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 3 mg/l
Result: Readily biodegradable.
Biodegradation: 86 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

2,2'-[(4-methylphenyl)imino]bisethanol:
Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 18 mg/l
Result: Not biodegradable
Biodegradation: 1.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes
Remarks: Based on data from similar materials

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

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Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

methyl methacrylate:
 Bioaccumulation : Bioconcentration factor (BCF): 3

Components:

methyl methacrylate:
 Partition coefficient: n-octanol/water : log Pow: 1.38

methacrylic acid:
 Partition coefficient: n-octanol/water : log Pow: 0.93 (72 °F / 22 °C)
 pH: 2.2

hexadecyl methacrylate:
 Partition coefficient: n-octanol/water : log Pow: 8.64
 Method: QSAR
 GLP: no

2,2'-[(4-methylphenyl)imino]bisethanol:
 Partition coefficient: n-octanol/water : log Pow: 2 (95 °F / 35 °C)
 pH: 7
 Method: OECD Test Guideline 117

Mobility in soil

Mobility : No data available

Distribution among environmental compartments : No data available

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

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Hazardous to the ozone layer

- Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82
Protection of Stratospheric Ozone - CAA Section 602 Class I
Substances
Remarks: This product neither contains, nor was
manufactured with a Class I or Class II ODS as defined by the
U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A +
B).
- Additional ecological information - Product : An environmental hazard cannot be excluded in the event of
unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.
- Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

- Waste from residues : The product should not be allowed to enter drains, water
courses or the soil.
Do not contaminate ponds, waterways or ditches with
chemical or used container.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and
national regulations.
Dispose of contents/ container to an approved waste disposal
plant.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA**

- UN/ID No. : UN 1133
Proper shipping name : Adhesives
Class : 3
Packing group : II
Labels : Flammable Liquids
Packing instruction (cargo
aircraft) : 364
Packing instruction
(passenger aircraft) : 353

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IMDG

UN number : UN 1133
 Proper shipping name : ADHESIVES

Class : 3
 Packing group : II
 Labels : 3
 EmS Code : F-E, S-D
 Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**DOT Classification**

UN/ID/NA number : UN 1133
 Proper shipping name : ADHESIVES

Class : 3
 Packing group : II
 Labels : FLAMMABLE LIQUID
 ERG Code : 128
 Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
methyl methacrylate	80-62-6	1000	1939
hydroquinone	123-31-9	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Respiratory or skin sensitisation
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

methyl methacrylate 80-62-6 >= 50 - < 70 %

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zinc oxide 1314-13-2 >= 1 - < 5 %

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

methyl methacrylate 80-62-6

California Prop. 65

WARNING: This product can expose you to chemicals including Talc (Mg₃H₂(SiO₃)₄), which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

DSL	: This product contains one or several components that are not on the Canadian DSL nor NDSL.
AIIC	: Not in compliance with the inventory
NZIoC	: Not in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On or in compliance with the active portion of the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

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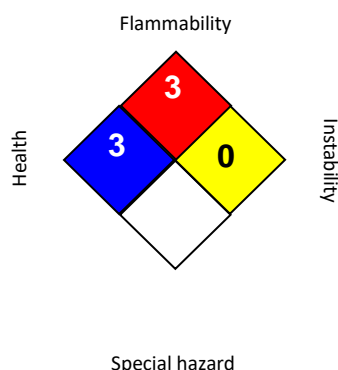
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SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	3
FLAMMABILITY	3
PHYSICAL HAZARD	0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Revision Date	: 06/03/2021
ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	: USA. NIOSH Recommended Exposure Limits
OSHA P0	: USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	: USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
NIOSH REL / TWA	: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	: STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	: Ceiling value not be exceeded at any time.
OSHA P0 / TWA	: 8-hour time weighted average
OSHA P0 / STEL	: Short-term exposure limit
OSHA Z-1 / TWA	: 8-hour time weighted average
OSHA Z-3 / TWA	: 8-hour time weighted average

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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HARDENER 2053 B

Version 1.1 Revision Date: 05/24/2023 SDS Number: 400000012099 Date of last issue: 09/07/2021
Date of first issue: 09/07/2021

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SECTION 1. IDENTIFICATION

Product name : HARDENER 2053 B

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)

Telephone : Non-Emergency: (800) 257-5547

E-mail address : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Hardener

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Eye irritation : Category 2A

Skin sensitisation : Category 1

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing dust.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of

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the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

P391 Collect spillage.

Storage:

Not available

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Castor oil	8001-79-4	30 - 50
aluminium hydroxide	21645-51-2	30 - 50
dibenzoyl peroxide	94-36-0	10 - 20

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : If on skin, rinse well with water.

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- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Metal oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed.
- Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.
Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Avoid formation of respirable particles.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labelled containers.
- Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.
- Recommended storage temperature : 36 - 64 °F / 2 - 18 °C
- Further information on storage stability : Stable under normal conditions.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Castor oil	8001-79-4	TWA (mist - total)	10 mg/m ³	NIOSH REL
		TWA (mist - respirable)	5 mg/m ³	NIOSH REL
aluminium hydroxide	21645-51-2	TWA (Respirable particulate matter)	1 mg/m ³ (Aluminium)	ACGIH
dibenzoyl peroxide	94-36-0	TWA	5 mg/m ³	ACGIH
		TWA	5 mg/m ³	OSHA Z-1
		TWA	5 mg/m ³	NIOSH REL
		TWA	5 mg/m ³	OSHA P0
zinc distearate	557-05-1	TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³	OSHA Z-1
		TWA (Inhalable particulate matter)	10 mg/m ³	ACGIH
		TWA (Respirable particulate matter)	3 mg/m ³	ACGIH
		TWA (Respirable)	5 mg/m ³	NIOSH REL
		TWA (total)	10 mg/m ³	NIOSH REL
		TWA (Total dust)	10 mg/m ³	OSHA P0
		TWA (respirable dust fraction)	5 mg/m ³	OSHA P0

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

 Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
 The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : paste
- Colour : black
- Odour : none
- Odour Threshold : No data is available on the product itself.
- pH : No data is available on the product itself.
- Melting point/freezing point : No data is available on the product itself.
- Boiling point : No data is available on the product itself.
- Flash point : No data is available on the product itself.
- Evaporation rate : No data is available on the product itself.
- Flammability (solid, gas) : No data is available on the product itself.
- Flammability (liquids) : No data is available on the product itself.
- Upper explosion limit / Upper flammability limit : No data is available on the product itself.
- Lower explosion limit / Lower flammability limit : No data is available on the product itself.
- Vapour pressure : No data is available on the product itself.
- Relative vapour density : No data is available on the product itself.
- Relative density : No data is available on the product itself.
- Density : 1.332 g/cm³
- Solubility(ies)
Water solubility : insoluble

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Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	Decomposition energy (mass): 236 KJ/kg
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	58,000 mPa.s (77 °F / 25 °C)
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Dust may form explosive mixture in air.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	aluminium oxide carbon monoxide carbon dioxide

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Components:****Castor oil:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

aluminium hydroxide:

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
 Method: OECD Test Guideline 423
 Assessment: The substance or mixture has no acute oral toxicity

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dibenzoyl peroxide:

Acute oral toxicity : LD50 (Mouse, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male): > 24.3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Skin corrosion/irritation**Components:****dibenzoyl peroxide:**

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation**Components:****Castor oil:**

Species : Rabbit
Result : No eye irritation

dibenzoyl peroxide:

Species : Rabbit
Result : Irritating to eyes.
Method : OECD Test Guideline 405

Respiratory or skin sensitisation**Components:****dibenzoyl peroxide:**

Exposure routes : Skin
Species : Mouse
Assessment : May cause sensitisation by skin contact.
Method : OECD Test Guideline 429
Result : Causes sensitisation.

Germ cell mutagenicity**Components:****dibenzoyl peroxide:**

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

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Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Cell type: Somatic
Application Route: Intraperitoneal injection
Dose: 0, 50, 100, 200 mg/kg b.w.
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity**Components:****dibenzoyl peroxide:**

Species : Mouse, male and female
Application Route : Dermal
Exposure time : 104 weeks
Result : negative

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Components:****dibenzoyl peroxide:**

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 0, 250, 500, 1,000 mg/kg b.w/
General Toxicity - Parent: NOAEL: 500 mg/kg body weight
General Toxicity F1: NOAEL: 500 mg/kg body weight
Method: OECD Test Guideline 422

Effects on foetal development : Species: Rat
Dose: 100, 300 or 1000 mg/kg/day
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Developmental Toxicity: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 414

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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Repeated dose toxicity**Components:****Castor oil:**

Species : Rat
LOAEL : 7.5 g/kg
Application Route : Ingestion
Exposure time : 2,160 h
Method : Subchronic toxicity

dibenzoyl peroxide:

Species : Rat, male and female
NOAEL : > 100 mg/kg
Application Route : Skin contact
Number of exposures : 2 years
Method : OECD Test Guideline 451

Aspiration toxicity

No data available

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****aluminium hydroxide:**

Toxicity to fish : LC50 : > 10,000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50: > 10,000 mg/l
aquatic invertebrates Exposure time: 48 h

dibenzoyl peroxide:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.0602 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 0.11 mg/l
aquatic invertebrates Exposure time: 48 h
Test Type: static test

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Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EbC50 (Selenastrum capricornutum (green algae)): 0.0422 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 10

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 0.001 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to microorganisms : EC50 (activated sludge): 35 mg/l
Exposure time: 0.5 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Persistence and degradability**Components:****dibenzoyl peroxide:**

Biodegradability : Inoculum: activated sludge
Concentration: 4 mg/l
Result: Readily biodegradable.
Biodegradation: 68 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Bioaccumulative potential**Components:****dibenzoyl peroxide:**

Partition coefficient: n-octanol/water : log Pow: 3.2 (72 °F / 22 °C)
pH: 7.02
Method: OECD Test Guideline 117

Mobility in soil**Components:****dibenzoyl peroxide:**

Distribution among environmental compartments : Koc: 6309.57
Method: OECD Test Guideline 121

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Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
 Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
 Very toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.
 Do not dispose of waste into sewer.
 Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
 Dispose of as unused product.
 Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No. : UN 3077
 Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
 (DIBENZOYL PEROXIDE)
 Class : 9
 Packing group : III
 Labels : Miscellaneous
 Packing instruction (cargo aircraft) : 956
 Packing instruction (passenger aircraft) : 956
 Environmentally hazardous : yes

IMDG-Code

UN number : UN 3077
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
 N.O.S.
 (DIBENZOYL PEROXIDE)
 Class : 9
 Packing group : III
 Labels : 9
 EmS Code : F-A, S-F

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Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**49 CFR**

UN/ID/NA number	: UN 3077
Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (DIBENZOYL PEROXIDE)
Class	: 9
Packing group	: III
Labels	: CLASS 9
ERG Code	: 171
Marine pollutant	: yes
Remarks	: Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

Remarks	: Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO. 49CFR: no dangerous good in non-bulk packaging
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The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 311/312 Hazards	: Respiratory or skin sensitisation Serious eye damage or eye irritation
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SARA 313	: The following components are subject to reporting levels established by SARA Title III, Section 313:
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dibenzoyl peroxide	94-36-0	>= 10 - < 20 %
zinc distearate	557-05-1	>= 1 - < 5 %

This product does not contain any hazardous air pollutants (HAP) >=0.1%, as defined by the U.S. Clean Air Act Section 112 (40 CFR 61

California Prop. 65

WARNING: This product can expose you to chemicals including silicon dioxide, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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The components of this product are reported in the following inventories:

- DSL : All components of this product are on the Canadian DSL
- AIIC : On the inventory, or in compliance with the inventory
- ENCS : On the inventory, or in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : Not in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory
- TCSI : On the inventory, or in compliance with the inventory
- TSCA : On or in compliance with the active portion of the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

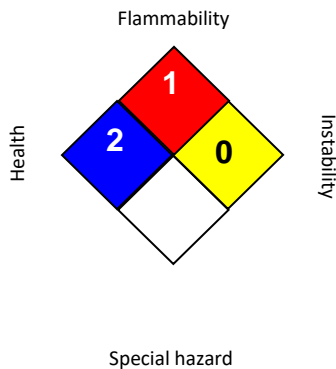
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH		2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

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ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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