



FLOWFAST STANDARD PRIMER
MATERIAL SAFETY DATA SHEET
Date Issued: 02/07/2010
Revision 2 – Date Revised: 09/11/2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name Flowfast Standard Primer

Application Methyl methacrylate primer for use on concrete substrates.

Supplier Flowcrete North America, Inc.
11133 Interstate 45 South, Suite K
Conroe, Texas 77302
Tel: 936-539-6700
Fax: 936-539-6701
usa@flowcrete.com
www.flowcrete.us

Emergency Phone Numbers (24 HR.) CHEMTREC (US, Canada, US Virgin Islands): (800) 424 - 9300
CHEMTREC (Outside USA): (703) 527 – 3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Methyl methacrylate	--	80-62-6	25 - 50	--
1,2-Ethanediol-dimethacrylate	--	97-90-5	1 – 2.5	--
2-hydroxyethylmethacrylate	--	868-77-9	25 – 50	--

See Section 8, Exposure Controls/Personal Protection

3. HAZARDS IDENTIFICATION

Emergency Overview

Color colorless, highly turbid
Appearance low-viscosity
Odor sweet, ester-like

Flammable liquid and vapor

Irritating to respiratory system and skin

May cause sensitization by skin contact.

May be ignited by heat, sparks or flame.

Vapors can travel to a source of ignition and flash back.

Danger of bursting of closed systems due to vigorous exothermic polymerization.

Avoid uncontrolled polymerization.

Container may explode when heated.

Primary Routes of Exposure

Inhalation
Skin Contact

Potential Health Effects

Inhalation May cause irritation to the respiratory tract.

Eye Contact May cause eye irritation.

Skin Contact May cause irritation and sensitization of the skin.

Not expected to be absorbed through the skin in toxic amounts.

Ingestion Expected to be slightly toxic by ingestion.

Chronic Effects No chronic (long-term) effects are known for humans.

Aggravated Medical Conditions Conjunctivitis of the eye, dermatitis of the skin, asthma and respiratory diseases.

Potential Environmental Effects See SECTION 12, Ecological Information.

4. FIRST- AID MEASURES

First Aid Procedures

Inhalation Remove to fresh air. If irritation persists, call a physician. Administer oxygen if breathing is difficult. Apply artificial respiration if victim is not breathing.

Eye Contact In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists. **DO NOT WEAR CONTACT LENSES WHEN USING THIS PRODUCT.**

Skin Contact In case of contact, wash skin with soap and water. If irritation persists, call a physician.

Ingestion Call a physician or poison control center immediately. Do NOT induce vomiting.

5. FIRE-FIGHTING MEASURES

Flash point	11.5°C (Setaflash Closed Cup) (methyl methacrylate) 52.7°F (Setaflash Closed Cup) (methyl methacrylate)
Ignition temperature	430°C (DIN 51794) (methyl methacrylate) 806°F (DIN 51794) (methyl methacrylate)
Autoignition temperature	Not available
Lower explosion limit	2.1% (V) (methyl methacrylate)
Upper explosion limit	12.5% (V) (methyl methacrylate)
OSHA Flammability Classification	Flammable liquid
Other Flammable Properties	Vapors are heavier than air and can form an explosive mixture with air. Never use welding or cutting torches on or near containers or drums (even when empty). Product residue or vapor in drums or container can ignite explosively. Cool warm or bulging containers to ambient temperature with water from a safe distance. Then wear eye and face protection and protective clothing while carefully opening bung to vent pressure.
Extinguishing Media	Use the following extinguishing media when fighting fires involving this material: Dry chemical – carbon dioxide – alcohol resistant foam
Fire Fighting Procedures	Evacuate enclosed and surrounding areas. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Use water spray to cool containers exposed to fire and disperse vapors. Keep spills away from sources of ignition.

6. ACCIDENTAL RELEASE MEASURES

Procedures	Remove sources of ignition and ventilate area. All equipment used when handling the product must be grounded. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. See section 8, Exposure Controls/Personal Protection.
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7. HANDLING AND STORAGE

Handling	Product is supplied in a stabilized form. Stir well before decanting from drum. Open container carefully as it may be pressurized. Use portable ventilation if necessary at job site. Ground and bond containers when transferring material. Keep container tightly closed. Use explosion-proof equipment. Do not eat, drink, smoke or chew tobacco around material.
Storage	Keep in the original container at a temperature not exceeding 25°C (77°F). Do not store in direct sunlight. Keep away from heat. Keep away from sparks, flames and other sources of ignition. Ensure the area is well ventilated. Keep container closed when not in use. Limit storage of flammable liquids to approved areas equipped with overhead sprinklers. Protect material from contamination (refer to Section 110 for incompatibilities). Fill the container by approximately 80% only as oxygen (air) is required for stabilization. With large storage containers make sure the oxygen (air) supply is sufficient to ensure stability. Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Limit Information

METHYL METHACRYLATE

(CAS No. 80-62-6)

Carcinogen designation(s) USA: EPA-E; EPA-NL; IARC-3; TLV-A4

Occupational Exposure Values

Remarks

Occupational Exposure Values	Remarks
ACGIH TLV-TWA	50 ppm 205 mg/m3 Sensitizer
OSHA PEL-TWA	100 ppm 410 mg/m3
ACGIH TLV-STEL	100 ppm 410 mg/m3 Sensitizer
OSHA PEL-STEL	not established
OEL-TWA (Alberta)	100 ppm 410 mg/m3
OEL-STEL (Alberta)	125 ppm 510 mg/m3
OEL-TWA (British Columbia)	50 ppm Skin designation (skin absorption can contribute to the overall exposure). Capable of causing respiratory or skin sensitization. Keep exposure as low as reasonably achievable.
OEL-STEL (British Columbia)	125 ppm Skin designation (skin absorption can contribute to the overall exposure). Capable of causing respiratory or skin sensitization. Keep exposure as low as reasonably achievable.
OEL-TWA (Ontario)	100 ppm 410 mg/m3
OEL-STEL (Ontario)	Not established
OEL-TWA (Quebec)	100 ppm 410 mg/m3
OEL-STEL (Quebec)	Not established
OEL-TWA (Mexico)	100 ppm 410 mg/m3
OEL-STEL (Mexico)	125 ppm 510 mg/m3

Engineering Controls (Ventilation) published	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Section 8. Refer to the current edition of 'Industrial Ventilation: A Manual of Recommended Practice' by the American Conference of Government Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.
Respiratory Protection	A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.
Eye Protection	Use safety glasses with side shields.
Skin Protection	On handling of larger quantities: face mask, chemical-resistant boots and apron
Hand Protection	Butyl rubber gloves Gloves should be replaced regularly, especially after extended contact with the product. For each work-place a suitable glove type has to be selected.
Other Protective Equipment	A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless, highly turbid
Physical state	low-viscosity
Odor	sweet, ester-like
Flash point	11.5°C (Setaflash Closed Cup) (methyl methacrylate) 52.7°F (Setaflash Closed Cup) (methyl methacrylate)
pH-value	not applicable
Viscosity (outflow time)	13 – 18 s at 23°C / 73°F (ISO 2431, 4 mm cup)
Specific gravity (water =1)	0.94 g/cm ³ at 20°C / 68°F
Vapor density (air=1)	>1 at 20°C / 68°F
Vapor pressure at 68°F	38.7 mbar
Freezing Temperature	/ -54°F not determined
Boiling Temperature	approx. 100°C / 212°F at 1,013 hPa (= mbar)
Solubility in water	approx 16 g/l at 20°C / 68°F
Coefficient of Water/Oil Distribution	1.38 log POW
Evaporation rate	>1 (butyl acetate = 1)
Odor threshold	<1 ppm
Further information	none

See Section 5, Fire Fighting measures

10. STABILITY AND REACTIVITY

Stability	This product is stable under normal storage conditions.
Condition To Avoid	Heat and ignition sources, aging, contamination, oxygen free atmosphere.
Incompatibility With Other Materials	Peroxides, amines, sulfur compounds, heavy metal ions, alkalis, reducing agents and oxidizing agents.
Hazardous Decomposition Products	None when used as directed.
Hazardous Polymerization	The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is noticeably exceeded, the product may polymerize with heat evolution. May occur when exposed to excessive heating or contaminated with incompatible materials.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity	
LD50 rat	7872 mg/kg
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Acute Inhalational Toxicity	
LC50 rat, 4h	3750 ppm
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Acute Dermal Toxicity	
LD50 rabbit	>5,000 mg/kg
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Irritant Effect on the Skin	
Rabbit, 24h, FDA 1959 Draize, occlusive	Not irritating
The data mentioned above refer to the component methyl methacrylate.	
Irritant Effect on the Eyes	
Rabbit, Draize	Not irritating
The data mentioned above refer to the component methyl methacrylate.	

Sensitization

In sensitization testes on guinea pigs with and without adjuvant, both positive and negative results were found, source: literature
 In humans various types of allergic reactions have been observed (symptoms: headache, eye irritations, skin affections). Source: literature

The data mentioned above refer to the component methyl methacrylate.

Toxicity on Repeated Administration

Rat, inhalation, 2a, 25 – 400 ppm

NOAEL 25ppm

Findings: Damage to mucous membranes in the nose at 400 ppm

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Rat, in drinking water, 2a, 5 – 2000 ppm

NOAEL 2000ppm

Finings: no toxic effects

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Mutagenicity

Positive as well as negative results in in vitro mutagenicity/genotoxicity tests.

No experimental indication of genotoxicity in vivo available.

In summary, not mutagenic according to internationally accepted criteria

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Carcinogenicity

Non-carcinogenic in inhalation and feeding studies carried out on rates, mice and dogs.

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Reprotoxicity

No indications of toxic effects were observed in reproduction studies in animals.

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Further information on

There are no toxicological data available for the product as such. Avoid contact with the skin and eyes and inhalation of the product vapors.

12. ECOLOGICAL INFORMATION

Information on Elimination (Persistence and Degradability)**Biodegradability**

Readily degradable, OECD 301C, 14d

94%

The data mentioned above refer to the component methyl methacrylate.

Ecotoxicological Effect**Fish Toxicity**

>79 mg/l

LC50 Oncorhynchus mykiss, rainbow trout, OECD 203, flow

Through, GLP, 96h

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Daphnia Toxicity

EC50 Daphnia magna, OECD 202, flow through, 48h

69 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

NOEC Daphnia magna, OECD 202 part 2, flow through, 21d

37 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Algae Toxicity

EC50 Selenastrum capricornutum, OECD 201, 96h

170mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

EC3 Scenedesmus quadricauda, DIN 38412 section 9, 8 d

37m g/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Bacteria Toxicity

EC0 Pseudomonas putida

100 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Further information on Ecology

Do not allow to enter soil, waterways or waste water.

13. DISPOSAL CONSIDERATIONS

Procedures

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method.
 Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH
 Do not reuse containers.

14. TRANSPORT INFORMATION**US DOT Hazard Classification**

Proper Shipping Name	Resin Solution
Technical Name	(containing methyl methacrylate)
Hazard Class	3
ID/UN Number	UN 1866
Packing Group	II
ERG:	127

Canadian TDG Classification

Refer to the classification US DOT

Shipment by sea IMDG/GGVSee

Class 3	EMS 3-05
UN Number	1866
Marine pollutant	Packed (+/0): 0
Packaging group	II
Proper Shipping name	Resin solution (containing methyl methacrylate)
Hazardous constituent	Methyl methacrylate

Air transport ICAO/IATA

Class 3	
UN Number	1866
Packaging group	II
Proper Shipping Name	Resin solution (containing methyl methacrylate)

15. REGULATORY INFORMATION**US EPA TSCA Status** All chemical ingredients are listed on the TSCA inventory.**Canada Domestic** All chemical ingredients are listed on the DSL**US FEDERAL REGULATORY INFORMATION**

Component / CASRN	TPQ [lbs]	CERCLA RQ [lbs] (40CFR302.4)	SARA 302 List of EHS	SARA 313 (40CFR372)	TSCA 12b
Methyl methacrylate / 80-62-6	NONE	1000	NO	YES	NO

COMPONENT CLASSIFICATION UNDER CLEAN AIR ACT SECTION 112

Component / CASRN	Weight %	HAP	EHAP
Methyl methacrylate 80-62-6	60 –100	YES	NO

PRODUCT CLASSIFICATION UNDER SECTION 311/312 OF SARA (40CFR370)

ACUTE, FIRE REACTIVE,

CANADIAN REGULATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation and the MSDS contains all information required by the Controlled Products Regulations.

This is a controlled product.

WHMIS: B2, D2B

Component / CASRN	NPRI
Methyl methacrylate 80-62-6	YES
1,2-Ethanediol-dimethacrylate / 97-90-5	NO
2-hydroxyethylmethacrylate / 868-77-9	NO

16. OTHER INFORMATION

	Health	Flammability	Physical Hazard
HMIS – Ratings	2	3	2
NFPA – Ratings	2	3	2

HMIS Hazard Ratings

4 = severe
3 = serious
2 = moderate
1 = slight
0 = minimal
N = no rating for powders
* = chronic health hazard

NFPA Hazard Ratings

4 = extreme
3 = high
2 = moderate
1 = slight
0 = insignificant
N = no rating for powders

This MSDS was prepared in accordance with ANSI Z400. 1 – 1998.



BROADCAST SAND
MATERIAL SAFETY DATA SHEET
Revision 2 – Date Revised: 05/01/2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name **Broadcast Sand**

Application Silica quartz for use in anti-slip flooring systems.

Supplier Flowcrete North America, Inc.
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Conroe, Texas 77302
Tel: 936-539-6700
Fax: 936-539-6701
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www.flowcrete.us

Emergency Phone Numbers CHEMTREC (US, Canada, US Virgin Islands): (800) 424 - 9300
(24 HR.) CHEMTREC (Outside USA): (703) 527 - 3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Quartzes, various grades (silicon dioxide)	238-878-4	14808-60-7	100	None

See section 16 Additional information, for full text regarding symbols and Risk phrases.

3. HAZARDS IDENTIFICATION

Harmful: danger of serious damage to health by prolonged exposure through inhalation of the respirable crystalline silica.
Breathing in respirable silica dust may ultimately lead to a lung disease known as silicosis.
Main hazard comes from generating dust on handling this component.

4. FIRST- AID MEASURES

Inhalation If irritation occurs, move to fresh air.
Skin Contact Wash with soap and plenty of water.
Eye Contact Hold eyelids apart and immediately flush with plenty of water.
Seek medical attention if irritation persists.
Ingestion: Wash out mouth, do not swallow mouthwash.

5. FIRE-FIGHTING MEASURES

This product is not flammable and will not facilitate combustion with other materials.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment as detailed in Section 8.
Avoid dust formation.
Methods for Cleaning Up Wet out spillage with water to minimize dust creation.
Shovel into suitable container.
Dispose in accordance with Section 13.

7. HANDLING AND STORAGE

Handling Provide sufficient air exchange and/or exhaust in work rooms. Avoid formation of dust cloud.
Ensure adequate ventilation. Use personal protective equipment as detailed in Section 8.
Handle and open container with care.
Storage Store in a dry, cool, well-ventilated place.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Maximum exposure limit for Silica, respirable crystalline dust : 0.1 mg/m³ 8h TWA (8 hour time weighted average) (CHAN)
Occupational Exposure Standard for dust, Total inhalable dust : 10mg/m³ 8h TWA
Respirable dust : 4 mg/m³ 8h TWA

Engineering measures to reduce exposure	N/A
Personal Protective Equipment	
Respiratory Protection	Wear a particulate dust mask.
Eye Protection	Goggles, safety spectacles with side pieces or face mask.
Skin and Body Protection	PVC gloves and overalls (to prevent skin dryness or irritation from handling the quartz.)

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Powder	Color	White
Odor	None	Relative Density	~2.65
Boiling Point	~1610°C	Water Solubility	Insoluble
Flashpoint	Not applicable (not flammable)	Water Miscibility	Not applicable
Explosion limits	Not applicable	Vapor Pressure	Not applicable

10. STABILITY AND REACTIVITY

Material is stable when stored under normal dry conditions.

Conditions to Avoid	None
Materials to Avoid	None
Hazardous Decomposition Products	None

11. TOXICOLOGICAL INFORMATION

Quartzes are not classified as hazardous in accordance with local regulations.

Further Information	Respirable crystalline silica dust may cause silicosis, a lung disease. Long term exposures to high levels of respirable crystalline silica can also lead to an increased risk of developing lung cancer.
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12. ECOLOGICAL INFORMATION

Ecotoxicity	LC ₅₀ aquatic toxicity rating not determined.
Biodegradation	Resistant.
Additional ecological information	This is a non-volatile and insoluble material and will accumulate in the ground.

13. DISPOSAL CONSIDERATIONS

Unused Product/Waste from Cleaning, etc.	Dispose of unused material in accordance with local and national regulations. Use EWC Code: 080199.
Contaminated Packaging	Treat as non-hazardous packaging waste, use EWC Code 150101 for paper, 150102 for plastic.

14. TRANSPORT INFORMATION

Not classified as hazardous for transport.

15. REGULATORY INFORMATION

US EPA TSCA Status	All chemical ingredients are listed on the TSCA inventory.
Canada Domestic	All chemical ingredients are listed on the DSL

R-phrases	
R48:R2	Harmful: danger of serious damage to health by prolonged exposure through inhalation.

S-phrases	
S22	Do not breathe dust.
S33	Take precautionary measures against static discharges.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
Special Provisions Statement	None
Hazardous Component(s) which must be listed on the label	Respirable crystalline silica

EC Directives	Dangerous Substances Directive, 67/548/EEC & adaptations Dangerous Preparations Directive, 88/379/EEC Safety Data Sheets Directive, 91/155/EEC
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Statutory Instruments	Chemicals (Hazard Information & Packaging for Supply) Regs 2002. Control of Substances Hazardous to Health Regs 2002
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Environmental Protection (Duty of Care) Regs. 1991.

Codes of Practice Waste Management. The Duty of Care.
Approved classification and labeling guide (Fifth edition). L131.
The compilation of safety data sheets (Third edition).

Guidance Notes Occupational Exposure Limits EH40
CHIP for Everyone HSG(108)
Respirable Crystalline Silica: Phase 1 (EH75/4)
Construction Information Sheet No 36 (revision 1) CIS36(rev1) - Silica
Chemical Hazard Alert Notice 35 – Respirable Crystalline Silica

16. OTHER INFORMATION

This data sheet does not replace the obligation of the user to provide their own assessment of workplace risk as required by other Health & Safety legislation.

EC Directive relating to the classification, packaging and labeling of dangerous substances and preparations – Classification(s) and Risk (R) phrase(s) referred to in this document:

R48:R20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

HMIS Ratings

Health	1
Flammability	0
Reactivity	0

Training Advice

Applicators need to be trained in:-
Handling and hygiene associated with use of industrial chemicals.
Correct cleaning and disposal methods.

Notes

Beware of cross contamination where different products are in use in the same location.

Restrictions on Use

The product is intended for use by appropriately trained applicators in industrial situations. It is not suitable for use in home DIY applications, especially because of its hazardous nature and the protective measures required.

This safety data sheet is based on our present knowledge and experience and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.



FLOWFAST STANDARD BINDER
MATERIAL SAFETY DATA SHEET
Date Issued: 02/07/2011
Revision 1 – Date Revised: 05/15/2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name Flowfast Standard Binder

Application Methyl methacrylate binder resin.

Supplier Flowcrete North America, Inc.
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Conroe, Texas 77302
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Fax: 936-539-6701
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www.flowcrete.us

Emergency Phone Numbers CHEMTREC (US, Canada, US Virgin Islands): (800) 424 - 9300
(24 HR.) CHEMTREC (Outside USA): (703) 527 – 3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Methyl methacrylate	--	80-62-6	25 - 50	--
2-Ethylhexylacrylate	--	103-11-7	10 – 25	--

See Section 8, Exposure Controls/Personal Protection

3. HAZARDS IDENTIFICATION

Emergency Overview

Color bluish, highly turbid
Appearance low-viscosity
Odor sweet, ester-like

Flammable liquid and vapor

May cause sensitization by skin contact.

May be ignited by heat, sparks or flame.

Vapors can travel to a source of ignition and flash back.

Danger of bursting of closed systems due to vigorous exothermic polymerization.

Avoid uncontrolled polymerization.

Container may explode when heated.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

May be irritating to respiratory system and skin.

Primary Routes of Exposure

Inhalation
Skin Contact

Potential Health Effects

Inhalation May cause irritation to the respiratory tract.

Eye Contact May cause eye irritation.

Skin Contact May cause irritation and sensitization of the skin.

Not expected to be absorbed through the skin in toxic amounts.

Ingestion Expected to be slightly toxic by ingestion.

Chronic Effects No chronic (long-term) effects are known for humans.

Aggravated Medical Conditions Conjunctivitis of the eye, dermatitis of the skin, asthma and respiratory diseases.

Potential Environmental Effects See SECTION 12, Ecological Information.

4. FIRST- AID MEASURES

First Aid Procedures

Inhalation Remove to fresh air. If irritation persists, call a physician. Administer oxygen if breathing is difficult. Apply artificial respiration if victim is not breathing.

Eye Contact In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists. DO NOT WEAR CONTACT LENSES WHEN USING THIS PRODUCT.

Skin Contact In case of contact, wash skin with soap and water. If irritation persists, call a physician.
Ingestion Call a physician or poison control center immediately. Do NOT induce vomiting.

5. FIRE-FIGHTING MEASURES

Flash point 11.5°C (Setaflash Closed Cup) (methyl methacrylate)
 52.7°F (Setaflash Closed Cup) (methyl methacrylate)

Ignition temperature 430°C (DIN 51794) (methyl methacrylate)
 806°F (DIN 51794) (methyl methacrylate)

Autoignition temperature Not available

Lower explosion limit 2.1% (V) (methyl methacrylate)

Upper explosion limit 12.5% (V) (methyl methacrylate)

OSHA Flammability Classification **Flammable liquid**

Other Flammable Properties Vapors are heavier than air and can form an explosive mixture with air. Never use welding or cutting torches on or near containers or drums (even when empty). Product residue or vapor in drums or container can ignite explosively. Cool warm or bulging containers to ambient temperature with water from a safe distance. Then wear eye and face protection and protective clothing while carefully opening bung to vent pressure.

Extinguishing Media Use the following extinguishing media when fighting fires involving this material:
 Dry chemical – carbon dioxide – alcohol resistant foam

Fire Fighting Procedures Evacuate enclosed and surrounding areas. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Use water spray to cool containers exposed to fire and disperse vapors. Keep spills away from sources of ignition.

6. ACCIDENTAL RELEASE MEASURES

Procedures Remove sources of ignition and ventilate area. All equipment used when handling the product must be grounded. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. See section 8, Exposure Controls/Personal Protection.

7. HANDLING AND STORAGE

Handling Product is supplied in a stabilized form. Stir well before decanting from drum. Open container carefully as it may be pressurized. Use portable ventilation if necessary at job site. Ground and bond containers when transferring material. Keep container tightly closed. Use explosion-proof equipment. Do not eat, drink, smoke or chew tobacco around material.

Storage Keep in the original container at a temperature not exceeding 25°C (77°F). Do not store in direct sunlight. Keep away from heat. Keep away from sparks, flames and other sources of ignition. Ensure the area is well ventilated. Keep container closed when not in use. Limit storage of flammable liquids to approved areas equipped with overhead sprinklers. Protect material from contamination (refer to Section 110 for incompatibilities). Fill the container by approximately 80% only as oxygen (air) is required for stabilization. With large storage containers make sure the oxygen (air) supply is sufficient to ensure stability. Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Limit Information

METHYL METHACRYLATE

(CAS No. 80-62-6)

Carcinogen designation(s) USA: EPA-E; EPA-NL; IARC-3; TLV-A4

Occupational Exposure Values

Remarks

Occupational Exposure Values	Remarks
ACGIH TLV-TWA	50 ppm 205 mg/m3 Sensitizer
OSHA PEL-TWA	100 ppm 410 mg/m3
ACGIH TLV-STEL	100 ppm 410 mg/m3 Sensitizer
OSHA PEL-STEL	not established
OEL-TWA (Alberta)	100 ppm 410 mg/m3
OEL-STEL (Alberta)	125 ppm 510 mg/m3
OEL-TWA (British Columbia)	50 ppm Skin designation (skin absorption can contribute to the overall exposure). Capable of causing respiratory or skin sensitization. Keep exposure as low as reasonably achievable.
OEL-STEL (British Columbia)	125 ppm Skin designation (skin absorption can contribute to the overall exposure). Capable of causing respiratory or skin sensitization. Keep exposure as low as reasonably achievable.
OEL-TWA (Ontario)	100 ppm 410 mg/m3
OEL-STEL (Ontario)	Not established
OEL-TWA (Quebec)	100 ppm 410 mg/m3
OEL-STEL (Quebec)	Not established
OEL-TWA (Mexico)	100 ppm 410 mg/m3
OEL-STEL (Mexico)	125 ppm 510 mg/m3

Engineering Controls (Ventilation)	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Section 8. Refer to the current edition of 'Industrial Ventilation: A Manual of Recommended Practice' published by the American Conference of Government Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.
Respiratory Protection	A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.
Eye Protection	Use safety glasses with side shields.
Skin Protection	On handling of larger quantities: face mask, chemical-resistant boots and apron
Hand Protection	Butyl rubber gloves Gloves should be replaced regularly, especially after extended contact with the product. For each work-place a suitable glove type has to be selected.
Other Protective Equipment	A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	bluish, highly turbid
Physical state	low-viscosity
Odor	sweet, ester-like
Flash point	11.5°C (Setaflash Closed Cup) (methyl methacrylate) 52.7°F (Setaflash Closed Cup) (methyl methacrylate)
pH-value	not applicable
Viscosity (dynamic)	200 – 250 mPa.s at 23°C / 73°F (Brookfield)
Viscosity (outflow time)	33 – 43 s (ISO 2431, 6 mm cup)
Specific gravity (water =1)	1.01 g/cm ³ at 20°C / 68°F
Vapor density (air=1)	>1 g/cm ³ at 20°C / 68°F
Vapor pressure at 68°F	38.7 mbar
Freezing Temperature	not available
Boiling Temperature	approx. 100°C / 212°F at 1,013 hPa (= mbar)
Solubility in water	approx 20 g/l at 20°C / 68°F
Coefficient of Water/Oil	not available
Distribution	
Evaporation rate	>1 (butyl acetate = 1)
Odor threshold	<1 ppm
Further information	none

See Section 5, Fire Fighting measures

10. STABILITY AND REACTIVITY

Stability	This product is stable under normal storage conditions.
Condition To Avoid	Heat and ignition sources, aging, contamination, oxygen free atmosphere.
Incompatibility With Other Materials	Peroxides, amines, sulfur compounds, heavy metal ions, alkalis, reducing agents and oxidizing agents.
Hazardous Decomposition Products	None when used as directed.
Hazardous Polymerization	The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is noticeably exceeded, the product may polymerize with heat evolution. May occur when exposed to excessive heating or contaminated with incompatible materials.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity	
LD50 rat	7872 mg/kg
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Acute Inhalational Toxicity	
LC50 rat, 4h	3750 ppm
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Acute Dermal Toxicity	
LD50 rabbit	>5,000 mg/kg
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Irritant Effect on the Skin	
Contact with skin may cause irritation	
Irritant Effect on the Eyes	
Contact with the eyes may cause irritation	
Sensitization	
May cause sensitization by skin contact.	
The data mentioned above refer to the product.	

Toxicity on Repeated Administration

Rat, inhalation, 2a, 0, 25, 100, 400 ppm NOAEL 25ppm

Findings: Damage to mucous membranes in the nose at 400 ppm

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Rat, in drinking water, 2a, 0, 6/7, 60/70, 2000 ppm NOAEL 2000ppm

Findings: no toxic effects

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Mutagenicity

Positive as well as negative results in in vitro mutagenicity/genotoxicity tests.

No experimental indication of genotoxicity in vivo available.

In summary, not mutagenic according to internationally accepted criteria

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Carcinogenicity

Non-carcinogenic in inhalation and feeding studies carried out on rates, mice and dogs.

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Reprotoxicity

No indications of toxic effects were observed in reproduction studies in animals.

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Further information on

There are no toxicological data available for the product as such. Avoid contact with the skin and eyes and inhalation of the product vapors.

12. ECOLOGICAL INFORMATION**Information on Elimination (Persistence and Degradability)****Biodegradability**

Biodegradable 94%

The data mentioned above refer to the product

Ecotoxicological Effect**Fish Toxicity**

LC50 79 mg/l

(analogy)

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Daphnia Toxicity

EC50 Daphnia magna, OECD 202, flow through, 48h 69 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

NOEC Daphnia magna, OECD 202 part 2, flow through, 21d 37 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Algae Toxicity

EC3 Scenedesmus quadricauda, DIN 38412 section 9, 8 d 37m g/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Bacteria Toxicity

EC0 Pseudomonas putida 100 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Further information on Ecology

Do not allow to enter soil, waterways or waste water.

13. DISPOSAL CONSIDERATIONS**Procedures**

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH
Do not reuse containers.

14. TRANSPORT INFORMATION**US DOT Hazard Classification**

Proper Shipping Name	Resin Solution
Technical Name	(containing methyl methacrylate)
Hazard Class	3
ID/UN Number	UN 1866
Packing Group	II

ERG: 127

Canadian TDG Classification

Refer to the classification US DOT

Shipment by sea IMDG/GGVSee

Class 3 EMS 3-05
UN Number 1866
Marine pollutant Packed (+/0): 0
Packaging group II
Proper Shipping name Resin solution (containing methyl methacrylate)
Hazardous constituent Methyl methacrylate

Air transport ICAO/IATA

Class 3
UN Number 1866
Packaging group II
Proper Shipping Name Resin solution (containing methyl methacrylate)

15. REGULATORY INFORMATION

US EPA TSCA Status All chemical ingredients are listed on the TSCA inventory.

Canada Domestic All chemical ingredients are listed on the DSL

US FEDERAL REGULATORY INFORMATION

Component / CASRN	TPQ [lbs]	CERCLA RQ [lbs] (40CFR302.4)	SARA 302 List of EHS	SARA 313 (40CFR372)	TSCA 12b
Methyl methacrylate / 80-62-6	NONE	1000	NO	YES	NO

COMPONENT CLASSIFICATION UNDER CLEAN AIR ACT SECTION 112

Component / CASRN	Weight %	HAP	EHAP
Methyl methacrylate 80-62-6	40 – 70	YES	NO

PRODUCT CLASSIFICATION UNDER SECTION 311/312 OF SARA (40CFR370)

ACUTE, FIRE REACTIVE,

CANADIAN REGULATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation and the MSDS contains all information required by the Controlled Products Regulations.

This is a controlled product.

WHMIS: B2, D2B

Component / CASRN	NPRI
Methyl methacrylate 80-62-6	YES
2-Ethylhexylacrylate / 103-11-7	NO

16. OTHER INFORMATION

	Health	Flammability	Physical Hazard
HMIS – Ratings	2	3	2
NFPA – Ratings	2	3	2

HMIS Hazard Ratings	NFPA Hazard Ratings
4 = severe	4 = extreme
3 = serious	3 = high
2 = moderate	2 = moderate
1 = slight	1 = slight
0 = minimal	0 = insignificant
N = no rating for powders	N = no rating for powders
* = chronic health hazard	

This MSDS was prepared in accordance with ANSI Z400. 1 – 1998.



COLOR QUARTZ
MATERIAL SAFETY DATA SHEET
Date Issued: 01/22/05
Revision 1 – Date Revised: 05/01/2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name **Color Quartz**

Application Quartz for broadcasting into flooring systems.

Supplier Flowcrete North America, Inc.
11133 Interstate 45 South, Suite K
Conroe, Texas 77302
Tel: 936-539-6700
Fax: 936-539-6701
usa@flowcrete.com
www.flowcrete.us

Emergency Phone Numbers CHEMTREC (US, Canada, US Virgin Islands): (800) 424 - 9300
(24 HR.) CHEMTREC (Outside USA): (703) 527 – 3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	% by weight	OSHA (PEL)	ACGIH (TLV)
Silica Sand	14808-60-7	94		0.1MG/M3
Resin	Non-Hazardous Proprietary	4.95	N/A	N/A
TiO2	13463-67-7	0.99		
Colorants Organic and Inorganic	Non-Hazardous	0.06		

* Special Statement regarding Hazardous ingredients:
Although these products are composed primarily of Silica Sand (SiO₂), and such sand is potentially a source for respirable dust, the sand particles are thoroughly encapsulated in a coating which captures all dust and should, under normal circumstances, prevent any normal release of silica dust to the workplace. See page two, Section VIII for further information on handling.

3. HAZARDS IDENTIFICATION

Harmful: danger of serious damage to health by prolonged exposure through inhalation of the respirable crystalline silica.
Breathing in respirable silica dust may ultimately lead to a lung disease known as silicosis.
Main hazard comes from generating dust on handling this component.

4. FIRST- AID MEASURES

Inhalation If irritation occurs, move to fresh air.
Skin Contact Wash with soap and plenty of water.
Eye Contact Hold eyelids apart and immediately flush with plenty of water.
 Seek medical attention if irritation persists.
Ingestion: Wash out mouth, do not swallow mouthwash.

5. FIRE-FIGHTING MEASURES

Flash Point Non-flammable
Flammable Limits LEL- N/A , UEL - N/A
Unusual Fire and Products of combustion may include irritating gases.
Explosion Hazards

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment as detailed in Section 8.
 Avoid dust formation.
Methods for Cleaning Up Wet out spillage with water to minimize dust creation.
 Shovel into suitable container.
 Dispose in accordance with Section 13.

7. HANDLING AND STORAGE

Handling Provide sufficient air exchange and/or exhaust in work rooms. Avoid formation of dust cloud.
 Ensure adequate ventilation. Use personal protective equipment as detailed in Section 8.
 Handle and open container with care.

Storage Store in a dry, cool, well-ventilated place.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Maximum exposure limit for Silica, respirable crystalline dust : 0.1 mg/m³ 8h TWA (8 hour time weighted average) (CHAN)

Occupational Exposure Standard for dust, Total inhalable dust : 10mg/m³ 8h TWA

Respirable dust : 4 mg/m³ 8h TWA

Engineering measures to reduce exposure N/A

Personal Protective Equipment

Respiratory Protection Wear a particulate dust mask.

Eye Protection Goggles, safety spectacles with side pieces or face mask.

Skin and Body Protection PVC gloves and overalls (to prevent skin dryness or irritation from handling the quartz.)

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	None	Specific Gravity	2.65
Vapor pressure	None	pH	Inert
Vapor density	None	Evaporation Rate	N/A
% Volatiles	<1%	Solubility in Water	Insoluble
Appearance	Sand or aggregate, typical colors		

10. STABILITY AND REACTIVITY

Stability Stable
Incompatibility Dissolves in hydrofluoric acid
Conditions to Avoid None known

11. TOXICOLOGICAL INFORMATION

Quartzes are not classified as hazardous in accordance with local regulations.

Further Information Respirable crystalline silica dust may cause silicosis, a lung disease.
Long term exposures to high levels of respirable crystalline silica can also lead to an increased risk of developing lung cancer.

12. ECOLOGICAL INFORMATION

Ecotoxicity LC₅₀ aquatic toxicity rating not determined.
Biodegradation Resistant.
Additional ecological information This is a non-volatile and insoluble material and will accumulate in the ground.

13. DISPOSAL CONSIDERATIONS

Unused Product/Waste from Cleaning, etc. Dispose of unused material in accordance with local and national regulations.
Use EWC Code: 080199.
Contaminated Packaging Treat as non-hazardous packaging waste, use EWC Code 150101 for paper, 150102 for plastic.

14. TRANSPORT INFORMATION

Not classified as hazardous for transport.

15. REGULATORY INFORMATION

US EPA TSCA Status All chemical ingredients are listed on the TSCA inventory.

Canada Domestic All chemical ingredients are listed on the DSL

R-phrases

R48:R2 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

S-phrases

S22 Do not breathe dust.
S33 Take precautionary measures against static discharges.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Special Provisions Statement None

Hazardous Component(s) which must be listed on the label Respirable crystalline silica

EC Directives Dangerous Substances Directive, 67/548/EEC & adaptations
Dangerous Preparations Directive, 88/379/EEC
Safety Data Sheets Directive, 91/155/EEC

Statutory Instruments	Chemicals (Hazard Information & Packaging for Supply) Regs 2002. Control of Substances Hazardous to Health Regs 2002 Environmental Protection (Duty of Care) Regs. 1991.
Codes of Practice	Waste Management. The Duty of Care. Approved classification and labeling guide (Fifth edition). L131. The compilation of safety data sheets (Third edition).
Guidance Notes	Occupational Exposure Limits EH40 CHIP for Everyone HSG(108) Respirable Crystalline Silica: Phase 1 (EH75/4) Construction Information Sheet No 36 (revision 1) CIS36(rev1) - Silica Chemical Hazard Alert Notice 35 – Respirable Crystalline Silica

16. OTHER INFORMATION

This data sheet does not replace the obligation of the user to provide their own assessment of workplace risk as required by other Health & Safety legislation.

EC Directive relating to the classification, packaging and labeling of dangerous substances and preparations – Classification(s) and Risk (R) phrase(s) referred to in this document:

Xn	Harmful
R48:R20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.

HMIS Ratings

Health	1
Flammability	0
Reactivity	0
Personal protection	-

Training Advice

Applicators need to be trained in:-
Handling and hygiene associated with use of industrial chemicals.
Correct cleaning and disposal methods.

Notes

Beware of cross contamination where different products are in use in the same location.

Restrictions on Use

The product is intended for use by appropriately trained applicators in industrial situations. It is not suitable for use in home DIY applications, especially because of its hazardous nature and the protective measures required.

This safety data sheet is based on our present knowledge and experience and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.



FLOWFAST STANDARD SEALER
MATERIAL SAFETY DATA SHEET
Date Issued: 02/07/2011
Revision 1 – Date Revised: 05/15/2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name **Flowfast Standard Sealer**

Application Methyl methacrylate Sealer coat.

Supplier Flowcrete North America, Inc.
11133 Interstate 45 South, Suite K
Conroe, Texas 77302
Tel: 936-539-6700
Fax: 936-539-6701
usa@flowcrete.com
www.flowcrete.us

Emergency Phone Numbers CHEMTREC (US, Canada, US Virgin Islands): (800) 424 - 9300
(24 HR.) CHEMTREC (Outside USA): (703) 527 – 3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Methyl methacrylate	--	80-62-6	> 50	--
Ethoxylated paratoluidine	--	3077-12-1	1 – 2.5	--

See Section 8, Exposure Controls/Personal Protection

3. HAZARDS IDENTIFICATION

Emergency Overview

Color Colorless, clear to cloudy, highly turbid
Appearance low-viscosity
Odor sweet, ester-like

Flammable liquid and vapor

May cause sensitization by skin contact.

May be ignited by heat, sparks or flame.

Vapors can travel to a source of ignition and flash back.

Danger of bursting of closed systems due to vigorous exothermic polymerization.

Avoid uncontrolled polymerization.

Container may explode when heated.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

May be irritating to respiratory system and skin.

Primary Routes of Exposure

Inhalation
Skin Contact

Potential Health Effects

Inhalation May cause irritation to the respiratory tract.

Eye Contact May cause eye irritation.

Skin Contact May cause irritation and sensitization of the skin.

Not expected to be absorbed through the skin in toxic amounts.

Ingestion Expected to be slightly toxic by ingestion.

Chronic Effects No chronic (long-term) effects are known for humans.

Aggravated Medical Conditions Conjunctivitis of the eye, dermatitis of the skin, asthma and respiratory diseases.

Potential Environmental Effects See SECTION 12, Ecological Information.

4. FIRST- AID MEASURES

First Aid Procedures

Inhalation Remove to fresh air. If irritation persists, call a physician. Administer oxygen if breathing is difficult. Apply artificial respiration if victim is not breathing.

Eye Contact In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists. **DO NOT WEAR CONTACT LENSES WHEN USING THIS PRODUCT.**

Skin Contact In case of contact, wash skin with soap and water. If irritation persists, call a physician.
Ingestion Call a physician or poison control center immediately. Do NOT induce vomiting.

5. FIRE-FIGHTING MEASURES

Flash point 11.5°C (Setaflash Closed Cup) (methyl methacrylate)
 52.7°F (Setaflash Closed Cup) (methyl methacrylate)

Ignition temperature 430°C (DIN 51794) (methyl methacrylate)
 806°F (DIN 51794) (methyl methacrylate)

Autoignition temperature Not available

Lower explosion limit 2.1% (V) (methyl methacrylate)

Upper explosion limit 12.5% (V) (methyl methacrylate)

OSHA Flammability Classification **Flammable liquid**

Other Flammable Properties Vapors are heavier than air and can form an explosive mixture with air. Never use welding or cutting torches on or near containers or drums (even when empty). Product residue or vapor in drums or container can ignite explosively. Cool warm or bulging containers to ambient temperature with water from a safe distance. Then wear eye and face protection and protective clothing while carefully opening bung to vent pressure.

Extinguishing Media Use the following extinguishing media when fighting fires involving this material:
 Dry chemical – carbon dioxide – alcohol resistant foam

Fire Fighting Procedures Evacuate enclosed and surrounding areas. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Use water spray to cool containers exposed to fire and disperse vapors. Keep spills away from sources of ignition.

6. ACCIDENTAL RELEASE MEASURES

Procedures Remove sources of ignition and ventilate area. All equipment used when handling the product must be grounded. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. See section 8, Exposure Controls/Personal Protection.

7. HANDLING AND STORAGE

Handling Product is supplied in a stabilized form. Stir well before decanting from drum. Open container carefully as it may be pressurized. Use portable ventilation if necessary at job site. Ground and bond containers when transferring material. Keep container tightly closed. Use explosion-proof equipment. Do not eat, drink, smoke or chew tobacco around material.

Storage Keep in the original container at a temperature not exceeding 25°C (77°F). Do not store in direct sunlight. Keep away from heat. Keep away from sparks, flames and other sources of ignition. Ensure the area is well ventilated. Keep container closed when not in use. Limit storage of flammable liquids to approved areas equipped with overhead sprinklers. Protect material from contamination (refer to Section 110 for incompatibilities). Fill the container by approximately 80% only as oxygen (air) is required for stabilization. With large storage containers make sure the oxygen (air) supply is sufficient to ensure stability. Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Limit Information

METHYL METHACRYLATE

(CAS No. 80-62-6)

Carcinogen designation(s) USA: EPA-E; EPA-NL; IARC-3; TLV-A4

Occupational Exposure Values

Remarks

Occupational Exposure Values	Remarks
ACGIH TLV-TWA	50 ppm 205 mg/m3 Sensitizer
OSHA PEL-TWA	100 ppm 410 mg/m3
ACGIH TLV-STEL	100 ppm 410 mg/m3 Sensitizer
OSHA PEL-STEL	not established
OEL-TWA (Alberta)	100 ppm 410 mg/m3
OEL-STEL (Alberta)	125 ppm 510 mg/m3
OEL-TWA (British Columbia)	50 ppm Skin designation (skin absorption can contribute to the overall exposure). Capable of causing respiratory or skin sensitization. Keep exposure as low as reasonably achievable.
OEL-STEL (British Columbia)	125 ppm Skin designation (skin absorption can contribute to the overall exposure). Capable of causing respiratory or skin sensitization. Keep exposure as low as reasonably achievable.
OEL-TWA (Ontario)	100 ppm 410 mg/m3
OEL-STEL (Ontario)	Not established
OEL-TWA (Quebec)	100 ppm 410 mg/m3
OEL-STEL (Quebec)	Not established
OEL-TWA (Mexico)	100 ppm 410 mg/m3
OEL-STEL (Mexico)	125 ppm 510 mg/m3

Engineering Controls (Ventilation)	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Section 8. Refer to the current edition of 'Industrial Ventilation: A Manual of Recommended Practice' published by the American Conference of Government Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.
Respiratory Protection	A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.
Eye Protection	Use safety glasses with side shields.
Skin Protection	On handling of larger quantities: face mask, chemical-resistant boots and apron
Hand Protection	Butyl rubber gloves Gloves should be replaced regularly, especially after extended contact with the product. For each work-place a suitable glove type has to be selected.
Other Protective Equipment	A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless, clear to cloudy, highly turbid
Physical state	low-viscosity
Odor	sweet, ester-like
Flash point	11.5°C (Setaflash Closed Cup) (methyl methacrylate) 52.7°F (Setaflash Closed Cup) (methyl methacrylate)
pH-value	not applicable
Specific gravity (water =1)	1.00 g/cm ³ at 20°C / 68°F
Vapor density (air=1)	>1 g/cm ³ at 20°C / 68°F
Vapor pressure	38.7 mbar at 20°C / 68°F
Melting Temperature	-48°C / -54°F (methyl methacrylate)
Boiling Temperature	approx. 100°C / 212°F at 1,013 hPa (= mbar)
Solubility in water	approx 20 g/l at 20°C / 68°F
Coefficient of Water/Oil	not available
Distribution	
Evaporation rate	>1 (butyl acetate = 1)
Odor threshold	<1 ppm
Further information	none

See Section 5, Fire Fighting measures

10. STABILITY AND REACTIVITY

Stability	This product is stable under normal storage conditions.
Condition To Avoid	Heat and ignition sources, aging, contamination, oxygen free atmosphere.
Incompatibility With Other Materials	Peroxides, amines, sulfur compounds, heavy metal ions, alkalis, reducing agents and oxidizing agents.
Hazardous Decomposition Products	None when used as directed.
Hazardous Polymerization	The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is noticeably exceeded, the product may polymerize with heat evolution. May occur when exposed to excessive heating or contaminated with incompatible materials.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity	
LD50 rat	7872 mg/kg
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Acute Inhalational Toxicity	
LC50 rat, 4h	3750 ppm
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Acute Dermal Toxicity	
LD50 rabbit	>5,000 mg/kg
Source: literature	
The data mentioned above refer to the component methyl methacrylate.	
Irritant Effect on the Skin	
Contact with skin may cause irritation. (analogy)	
Irritant Effect on the Eyes	
Contact with the eyes may cause irritation. (analogy)	
Sensitization	
May cause sensitization by skin contact.	
The data mentioned above refer to the product.	

Toxicity on Repeated Administration

Rat, inhalation, 2a, 25 – 400 ppm

NOAEL 25ppm

Findings: Damage to mucous membranes in the nose at 400 ppm

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Rat, in drinking water, 2a, 5 – 2000 ppm

NOAEL 2000ppm

Findings: no toxic effects

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Mutagenicity

Positive as well as negative results in in vitro mutagenicity/genotoxicity tests.

No experimental indication of genotoxicity in vivo available.

In summary, not mutagenic according to internationally accepted criteria

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Carcinogenicity

Non-carcinogenic in inhalation and feeding studies carried out on rats, mice and dogs.

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Reprotoxicity

No indications of toxic effects were observed in reproduction studies in animals.

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Further information on

There are no toxicological data available for the product as such. Avoid contact with the skin and eyes and inhalation of the product vapors.

12. ECOLOGICAL INFORMATION**Information on Elimination (Persistence and Degradability)****Biodegradability**

Biodegradable

The data mentioned above refer to the product

Ecotoxicological Effect**Fish Toxicity**

> 79 mg/l

LC50

(analogy)

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Daphnia Toxicity

EC50 Daphnia magna, OECD 202, flow through, 48h

69 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

NOEC Daphnia magna, OECD 202 part 2, flow through, 21d

37 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Algae Toxicity

EC3 Scenedesmus quadricauda, DIN 38412 section 9, 8 d

37m g/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Bacteria Toxicity

EC0 Pseudomonas putida

100 mg/l

Source: literature

The data mentioned above refer to the component methyl methacrylate.

Further information on Ecology

Do not allow to enter soil, waterways or waste water.

13. DISPOSAL CONSIDERATIONS**Procedures**

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH
Do not reuse containers.

14. TRANSPORT INFORMATION**US DOT Hazard Classification**

Proper Shipping Name

Resin Solution

Technical Name

(containing methyl methacrylate)

Hazard Class

3

ID/UN Number

UN 1866

Packing Group II
 ERG: 127

Canadian TDG Classification

Refer to the classification US DOT

Shipment by sea IMDG/GGVSee

Class 3 EmS F-E, SE
 UN Number 1866
 Marine pollutant Packed (+/0): 0
 Packaging group II
 Proper Shipping name Resin solution (containing methyl methacrylate)
 Hazardous constituent Methyl methacrylate

Air transport ICAO/IATA

Class 3
 UN Number 1866
 Packaging group II
 Proper Shipping Name Resin solution (containing methyl methacrylate)

15. REGULATORY INFORMATION

US EPA TSCA Status All chemical ingredients are listed on the TSCA inventory.
Canada Domestic All chemical ingredients are listed on the DSL

US FEDERAL REGULATORY INFORMATION

Component / CASRN	TPQ [lbs]	CERCLA RQ [lbs] (40CFR302.4)	SARA 302 List of EHS	SARA 313 (40CFR372)	TSCA 12b
Methyl methacrylate / 80-62-6	NONE	1000	NO	YES	NO

COMPONENT CLASSIFICATION UNDER CLEAN AIR ACT SECTION 112

Component / CASRN	Weight %	HAP	EHAP
Methyl methacrylate 80-62-6	40 -70	YES	NO

PRODUCT CLASSIFICATION UNDER SECTION 311/312 OF SARA (40CFR370)

ACUTE, FIRE REACTIVE,

CANADIAN REGULATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation and the MSDS contains all information required by the Controlled Products Regulations.

This is a controlled product.

WHMIS: B2, D2B

Component / CASRN	NPRI
Methyl methacrylate 80-62-6	YES
Ethoxylated paratoluidine / 3077-12-1	NO

16. OTHER INFORMATION

	Health	Flammability	Physical Hazard
HMIS – Ratings	2	3	2
NFPA – Ratings	2	3	2

HMIS Hazard Ratings	NFPA Hazard Ratings
4 = severe	4 = extreme
3 = serious	3 = high
2 = moderate	2 = moderate
1 = slight	1 = slight
0 = minimal	0 = insignificant
N = no rating for powders	N = no rating for powders
* = chronic health hazard	

This MSDS was prepared in accordance with ANSI Z400. 1 – 1998.