SAFETY DATA SHEET



1. Identification

Product identifier ETHYL SILICATE BINDER

Other means of identification

Brand Code 9459

Recommended use For Industrial Use Only

Recommended restrictions Avoid dry cutting, blasting, or dust generation.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

HarbisonWalker International Company name

1305 Cherrington Parkway, Suite 100 **Address**

Moon Township, Pennsylvania 15108 US

General Phone: 412-375-6600 Telephone

www.thinkHWI.com Website Not available. **Emergency phone number**

2. Hazard(s) identification

Physical hazards Flammable liquids Category 3 Category 4 **Health hazards** Acute toxicity, inhalation Skin corrosion/irritation Category 2 Serious eve damage/eve irritation Category 2A

> Carcinogenicity Category 2 Specific target organ toxicity, single exposure

Specific target organ toxicity, repeated

Category 1

Category 3 respiratory tract irritation

exposure

Not classified. **Environmental hazards OSHA** defined hazards Not classified.

Label elements



Signal word Danger

Flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. Harmful if **Hazard statement**

inhaled. May cause respiratory irritation. Suspected of causing cancer. Causes damage to organs

through prolonged or repeated exposure.

Precautionary statement

Obtain special instructions before use. Do not handle until all safety precautions have been read Prevention

and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling.

Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Response

> If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before

reuse. In case of fire: Use appropriate media to extinguish.

Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up. **Storage**

Material name: ETHYL SILICATE BINDER SDS US 1 / 10 Disposal

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

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetraethyl Orthosilicate		78-10-4	50 - 70
ETHYLENE GLYCOL		107-21-1	2.5 - 10
Ethanol		64-17-5	2.5 - 10
Methanol		67-56-1	0.1 - 2.5
2-METHYLPROPYL METHYL KETONE		108-10-1	< 0.5
Hydrogen Chloride		7647-01-0	< 0.5
Other components below reportable	e levels		20 - 40

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or

artificial respiration if needed. Call a poison center or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation

occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if

present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and

symptoms/effects, acute and delayed

Indication of immediate medical attention and special treatment needed

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off all contaminated clothing immediately. IF exposed or concerned: Get medical

advice/attention. If you feel unwell, seek medical advice (show the label where possible). Wash

contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

Unsuitable extinguishing media

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Use fire-extinguishing media appropriate for surrounding materials.

Not available.

Specific hazards arising from

the chemical

Not applicable.

Special protective equipment and precautions for firefighters

Not available.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. For personal protection, see section 8 of the SDS.

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Methods and materials for containment and cleaning up

Use water spray to reduce vapors or divert vapor cloud drift. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Cont Components	aminants (29 CFR 1910.1000) Type	Value	
2-METHYLPROPYL METHYL KETONE (CAS 108-10-1)	PEL	410 mg/m3	
		100 ppm	
Ethanol (CAS 64-17-5)	PEL	1900 mg/m3	
		1000 ppm	
Hydrogen Chloride (CAS 7647-01-0)	Ceiling	7 mg/m3	
		5 ppm	
Methanol (CAS 67-56-1)	PEL	260 mg/m3	
		200 ppm	
Tetraethyl Orthosilicate (CAS 78-10-4)	PEL	850 mg/m3	
		100 ppm	
US. ACGIH Threshold Limit Values			
Components	Туре	Value	Form
2-METHYLPROPYL METHYL KETONE (CAS 108-10-1)	STEL	75 ppm	
	TWA	20 ppm	
Ethanol (CAS 64-17-5)	STEL	1000 ppm	

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US. ACGIH Threshold Limit Value Components	Туре	Value	Form
ETHYLENE GLYCOL (CAS 107-21-1)	STEL	10 mg/m3	Aerosol, inhalable.
		50 ppm	Vapor fraction
	TWA	25 ppm	Vapor fraction
Hydrogen Chloride (CAS 7647-01-0)	Ceiling	2 ppm	
Methanol (CAS 67-56-1)	STEL	250 ppm	
	TWA	200 ppm	
Fetraethyl Orthosilicate CAS 78-10-4)	TWA	10 ppm	
JS. NIOSH: Pocket Guide to Chen		Walina	
Components	Туре	Value	
2-METHYLPROPYL METHYL KETONE (CAS 108-10-1)	STEL	300 mg/m3	
		75 ppm	
	TWA	205 mg/m3	
		50 ppm	
Ethanol (CAS 64-17-5)	TWA	1900 mg/m3	
		1000 ppm	
Hydrogen Chloride (CAS 7647-01-0)	Ceiling	7 mg/m3	
		5 ppm	
Methanol (CAS 67-56-1)	STEL	325 mg/m3	
		250 ppm	
	TWA	260 mg/m3	
		200 ppm	
Tetraethyl Orthosilicate CAS 78-10-4)	TWA	85 mg/m3	
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Biological limit values

ACGIH Bio	logical	Exposure	Indices
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Components	Value	Determinant	Specimen	Sampling Time	
2-METHYLPROPYL METHYL KETONE (CAS 108-10-1)	1 mg/l	Methyl isobutyl ketone	Urine	*	
Methanol (CAS 67-56-1)	15 mg/l	Methanol	Urine	*	

^{* -} For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Methanol (CAS 67-56-1) Skin designation applies.

US - Tennessee OELs: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Can be absorbed through the skin. Methanol (CAS 67-56-1)

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

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Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

exceeding the exposure limits.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.









General hygiene considerations

Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Liquid.
Physical state Liquid.
Form Liquid.

Color Not available.

Odor Not available.

Odor threshold Not available.

PH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling Not available.

range

Flash point

Evaporation rate

Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower

(%)

Not available.

Flammability limit - upper

(%)

Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Not available.

Partition coefficient Not available.

(n-octanol/water)

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

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Other information

Explosive properties Not explosive. **Oxidizing properties** Not oxidizing.

10. Stability and reactivity

ReactivityThe product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous Hazardous polymerization does not occur.

reactions

Conditions to avoid Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Incompatibility is based strictly upon potential theoretical reactions between chemicals and may

not be specific to industrial application exposure.

Hazardous decomposition

products

No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

InhalationHarmful if inhaled.Skin contactCauses skin irritation.Eye contactCauses serious eye irritation.

Ingestion Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred

vision. May cause respiratory irritation. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicityHarmful if inhaled.Skin corrosion/irritationCauses skin irritation.

Serious eye damage/eye

irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicityNo data available to indicate product or any components present at greater than 0.1% are

mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

2-METHYLPROPYL METHYL KETONE (CAS 108-10-1) 2B Possibly carcinogenic to humans.

Hydrogen Chloride (CAS 7647-01-0) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Possible reproductive hazard. **Specific target organ toxicity -** May cause respiratory irritation.

single exposure

Specific target organ toxicity -

repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

Chronic effects Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be

harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the

possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Material name: ETHYL SILICATE BINDER

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

2-METHYLPROPYL METHYL KETONE 1.31
ETHYLENE GLYCOL -1.36
Ethanol -0.31
Methanol -0.77

Mobility in soil No data available.

Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation

potential.

13. Disposal considerations

Disposal instructions

This product, in its present state, when discarded or disposed of, is not a hazardous waste

according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria

for hazardous waste.

Hazardous waste codeSince this product is used in several industries, no Waste Code can be provided by the supplier.

The Waste Code should be determined in arrangement with your waste disposal partner or the

responsible authority.

Waste from residues / unused

products

Not available.

Contaminated packaging Not available.

14. Transport information

DOT

UN number UN1993

UN proper shipping name Flammable liquids, n.o.s. (Ethanol RQ = 1059 LBS, Tetraethyl Orthosilicate)

Transport hazard class(es)

Class 3
Subsidiary risk Label(s) 3
Packing group III

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Special provisions B1, B52, IB3, T4, TP1, TP29

Packaging exceptions 150
Packaging non bulk 203
Packaging bulk 242

IATA

UN number UN1292

UN proper shipping name Tetraethyl silicate solution (Tetraethyl Orthosilicate)

Transport hazard class(es)

Class 3
Subsidiary risk Packing group III
Environmental hazards No.
ERG Code 3L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo

aircraft

Allowed with restrictions.

Cargo aircraft only Allowed with restrictions.

IMDG

UN number UN1292

UN proper shipping name TETRAETHYL SILICATE SOLUTION (Tetraethyl Orthosilicate)

Transport hazard class(es)

Class 3
Subsidiary risk Packing group III
Environmental hazards

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

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

Not established.

DOT



IATA; IMDG



15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All chemical substances in this product are listed on the TSCA chemical substance inventory where required.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

2-METHYLPROPYL METHYL KETONE (CAS 108-10-1) Listed. Ethanol (CAS 64-17-5) Listed. ETHYLENE GLYCOL (CAS 107-21-1) Listed. Hydrogen Chloride (CAS 7647-01-0) Listed. Methanol (CAS 67-56-1) Listed.

SARA 304 Emergency release notification

Hydrogen Chloride (CAS 7647-01-0) 5000 LBS OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
III III OLI OLI III	7047.04.0	E000	F00		

Hydrogen Chloride 7647-01-0 5000 500

SARA 311/312 Hazardous

chemical

Yes

Classified hazard

categories

Flammable (gases, aerosols, liquids, or solids)

Acute toxicity (any route of exposure)

Skin corrosion or irritation

Serious eye damage or eye irritation

Carcinogenicity

Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

 Chemical name	CAS number	% by wt.
 ETHYLENE GLYCOL	107-21-1	2.5 - 10

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 Chemical name
 CAS number
 % by wt.

 Methanol
 67-56-1
 0.1 - 2.5

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

2-METHYLPROPYL METHYL KETONE (CAS 108-10-1)

ETHYLENE GLYCOL (CAS 107-21-1) Hydrogen Chloride (CAS 7647-01-0)

Methanol (CAS 67-56-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Hydrogen Chloride (CAS 7647-01-0)

Safe Drinking Water Act Not regulated.

(SDWA)

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

2-METHYLPROPYL METHYL KETONE (CAS 6715

108-10-1)

Hydrogen Chloride (CAS 7647-01-0) 6545

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

2-METHYLPROPYL METHYL KETONE (CAS 35 %WV

108-10-1)

Hydrogen Chloride (CAS 7647-01-0) 20 %WV

DEA Exempt Chemical Mixtures Code Number

2-METHYLPROPYL METHYL KETONE (CAS 6715

108-10-1)

Hydrogen Chloride (CAS 7647-01-0) 6545

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

2-METHYLPROPYL METHYL KETONE (CAS Low priority

108-10-1)

Ethanol (CAS 64-17-5) Low priority

US state regulations

California Proposition 65

California Proposition 65 - CRT: Listed date/Carcinogenic substance

2-METHYLPROPYL METHYL KETONE (CAS Listed: November 4, 2011

108-10-1)

Ethanol (CAS 64-17-5) Listed: April 29, 2011

Listed: July 1, 1988

California Proposition 65 - CRT: Listed date/Developmental toxin

2-METHYLPROPYL METHYL KETONE (CAS Listed: March 28, 2014

108-10-1)

Ethanol (CAS 64-17-5)

ETHYLENE GLYCOL (CAS 107-21-1)

Methanol (CAS 67-56-1)

Listed: October 1, 1987

Listed: June 19, 2015

Listed: March 16, 2012

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

2-METHYLPROPYL METHYL KETONE (CAS 108-10-1)

ETHYLENE GLYCOL (CAS 107-21-1) Hydrogen Chloride (CAS 7647-01-0)

Methanol (CAS 67-56-1)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

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Country(s) or region Inventory name On inventory (yes/no)* Japan Inventory of Existing and New Chemical Substances (ENCS) Yes

Existing Chemicals List (ECL) Korea Yes New Zealand New Zealand Inventory Yes

Philippines Philippine Inventory of Chemicals and Chemical Substances Yes

(PICCS)

Taiwan Taiwan Chemical Substance Inventory (TCSI) Yes Toxic Substances Control Act (TSCA) Inventory United States & Puerto Rico Yes

16. Other information, including date of preparation or last revision

06-19-2015 Issue date 12-13-2019 **Revision date**

Version # 02

This information is based on our present knowledge on creation date. However, this shall not Disclaimer

constitute a guarantee for any specific product features and shall not establish a legally valid

contractual relationship.

Revision information This document has undergone significant changes and should be reviewed in its entirety.

^{*}A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).