



THE MU-MIX CORPORATION
Asphalt Restoration Solutions, License Agreements, Development and Consulting Services

Safety Data Sheet (SDS) North American (U.S. and Canada)

Revision date: 2020-07-30

SECTION 1: Identification

Product identifiers:

Product trade name:	Mu-Mix Additive Emulsion
Company product number:	Mu-Mix Additive
Other means of identification:	Not Available

Recommended use of the chemical and restrictions on use:

Uses:	Nitrile emulsion for coatings.
Restrictions on use:	None identified

Details of the supplier:

Manufacturer/Supplier:	Mu-Mix, Inc 425 Clearwater Hbr Sanford, NC 27332 United Telephone: +1-919-777-4332
-------------------------------	---

For further information about this SOS: Email: info@mu-mix.com

Emergency telephone number:

ChemTel (24 hours): 1-800-255-3924 (USA)

SECTION 2: Hazard(s) identification

Information in accordance with U.S. 29 CFR 1910.1200 (Hazcom 2012) and Canada Hazardous Products Regulations (WHMIS 2015):

Classification of the product:

Reproductive Toxicity, category 2

Label elements:

Hazard pictogram(s):



Signal word:

Warning

Hazard statements:

H361 Suspected of damaging fertility or the unborn child.

Precautionary statements:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P308+P313 IF exposed or concerned: Get medical advice/a tention.

P405 Store locked up.

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

Supplemental information: 1-5 percent of the mixture consists of ingredient(s) of unknown acute toxicity. Contains 1-5 % of components with unknown hazards to the aquatic environment.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

Hazards not otherwise classified:

Physical hazards not otherwise classified: No Additional Information

Health hazards not otherwise classified: No Additional Information

See Section 11 for toxicological information.

SECTION 3: Composition/information on ingredients

Mixture

<u>GAS-No.</u>	<u>Chemical Name</u>	<u>Weight%*</u>
0061790-50-9	Potassium resinate	1-<5
0000119-47-1	6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	0.1-<1.0

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits. * Exact percentage values for components are proprietary (trade secret) in accordance with 29 CFR 1910.1200(i) and Hazardous Products Regulations 4.4.1.

SECTION 4: First-aid measures

Description of first aid measures:

General: If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

Eye contact: Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion. If eye irritation persists: Get medical advice/attention.

Skin contact: Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Inhalation: If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

Most important symptoms and effects, both acute and delayed: Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. See section 11 for additional information.

Indication of any immediate medical attention and special treatment needed, if necessary: Treat symptomatically.

SECTION 5: Fire-fighting measures

NFPA flammability class: N/A

Extinguishing media:

Suitable: Being an aqueous system, product is not a fire hazard, as supplied. After water is evaporated, dry solids could burn. Water spray, ABC dry chemical and protein type air foams are effective. Carbon dioxide may be ineffective on larger fires due to a lack of cooling capacity, which may result in reignition.

Unsuitable: None known.

Special hazards arising from the chemical:

Unusual fire/explosion hazards: None known for the product as delivered (water solution).

Hazardous combustion products: Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See section 10 (Hazardous decomposition products) for additional information.

Special protective equipment and precautions for fire-fighters: Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Personal Protective Equipment must be worn.

Environmental precautions: Do not flush liquid into public sewer, water systems or surface waters.

Methods and materials for containment and cleaning up: Contain spill. Wear proper personal protective clothing and equipment. Recover as much as possible for reuse. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse. Wash the spill area with soap and water. CAUTION: Spilled liquid and dried film are slippery. Use care to avoid falls.

SECTION 7: Handling and storage

Precautions for safe handling As with any chemical product, use good laboratory/workplace procedures. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye and skin contact. Avoid inhalation of aerosol, mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area. Minimize contact with air to reduce contamination with mold, fungus, or other organisms which could cause decomposition or spoilage.

Conditions for safe storage, including any incompatibilities: Product quality degrades after freeze-thaw cycle. Recommend transportation and storage above 60°F (16°C). If product is stored, unopened at 60-90°F (16-32°C), then optimal performance has been reported up to six months from ship date. Store this material away from incompatible substances (see section 10). Do not allow product to freeze. Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning.

SECTION 8: Exposure controls/ personal protection

Control parameters:

Occupational exposure limits (OEL):

<u>Chemical Name</u>	<u>ACGIH-TWA/Ceiling</u>	<u>ACGIH-STEL</u>		
Potassium resinate	N/E	N/E		
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	N/E	N/E		
<u>Chemical Name</u>	<u>OSHA- PEL</u>	<u>OSHA-STEL</u>	<u>OSHA-Ceiling</u>	<u>AIHA-WEEL</u>
Potassium resinate	N/E	N/E	N/E	N/E
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	N/E	N/E	N/E	N/E

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

Exposure controls:

Appropriate engineering controls: Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SOS. (Ventilation guidelines/techniques may be found in publications such as Industrial Ventilation: American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Drive, Cincinnati, OH, 45240-1634, USA.) (<http://www.acgih.org/home.htm>).

Individual protection measures, such as personal protective equipment (PPE):

Eye/face protection Safety glasses or goggles required.

Skin and body protection Wear chemical resistant (impervious) gloves. Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

Respiratory protection: Wear an approved respirator (e.g., an organic vapor respirator, a full-face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SOS. Use respirator in accordance with manufacturer's use limitations and OSHA standard 1910.134 (29CFR).

Further information: Eyewash fountains and safety showers are recommended in the work area.

SECTION 9: Physical and chemical properties

SOS Name: Mu-Mix Additive Emulsion

Form:	Liquid	pH:	10.2-11.0
Appearance:	Milky	Relative density:	1.00
Odor:	Mild/ unpleasant	Partition coefficient (n-octanol/water:)	Not Available
Odor threshold	Not Available	% Volatile by weight:	60%
Solubility in water:	Dilutable	VOE:	Not Available
Evaporation rate:	Slower than n-butyl acetate	Boiling point °C:	100 °C
Vapor pressure:	18 mm Hg @ 68°F (20°C)	Boiling point °F:	212 °F
Vapor density:	Lighter than air	Flash point:	Not Applicable
Viscosity:	10-17 cps	Auto-ignition temperature:	Not Available
Melting point/Freezing point:	Not Available	Flammability (solid, gas):	Not Applicable (liquid)
Oxidizing properties:	Not oxidizing	Flammability or explosive limits:	LFL/LEL: Not Available
Explosive properties:	Not explosive		UFL/UEL: Not Available
Decomposition temperature:	Not Available	Surface tension:	

Other information: Amounts specified are typical and do not represent a specification.

SECTION 10: Stability and reactivity

Reactivity: None known.

Chemical stability: This product is stable. Product quality degrades after freeze-thaw cycle.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: Do not freeze.

Incompatible materials: Avoid contact with strong oxidizing agents.

Hazardous decomposition products After water is evaporated, decomposition or combustion of the dry solids may generate irritating vapors, CO, CO₂, oxides of nitrogen, monomers and hydrocarbons.

SECTION 11: Toxicological information

Information on likely routes of exposure:

General: Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Eyes: May cause eye irritation.

Skin: Repeated or prolonged skin contact may cause irritation.

Inhalation: High airborne concentrations of vapors resulting from heating, misting or spraying may cause irritation of the respiratory tract and mucous membranes.

Ingestion: Ingestion may cause irritation.

Symptoms/effects, acute and delayed: Irritation

Acute toxicity information: Not classified (based on available data, the classification criteria are not met). No toxicity studies have been conducted on this product. ATEmix (oral): >5000 mg/kg. ATEmix (dermal): >2000 mg/kg. The physical, chemical and toxicological properties of component(s) of this mixture may have not been fully determined.

<u>Chemical Name</u>	<u>Inhalation LCS0</u>	<u>Species</u>	<u>Oral LOS0</u>	<u>Species</u>	<u>Dermal LOS0</u>	<u>Species</u>
Potassium resinate	N/E	N/E	>2000 mg/kg (similar materials)	Rat/ adult female	>2000 mg/kg	Rat/ adult
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	>5 mg/L (4 hours)	Rat/ adult	>10000 mg/kg	Rat/ adult male	>5000 mg/kg	Rabbit/ adult

Skin corrosion/irritation: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Skin irritation</u>
----------------------	------------------------

SOS Name: Mu-Mix Additive Emulsion

<u>Chemical Name</u>	<u>Skin irritation</u>	<u>Species</u>
Potassium resinate	Non-irritant	Rabbit/ adult
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Non-irritant	Rabbit/ adult

Serious eye damage/irritation: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Eye irritation</u>	<u>Species</u>
Potassium resinate	Irritant	Rabbit/ adult
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Slight irritant	Rabbit/ adult

Respiratory or skin sensitization: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Skin sensitization</u>	<u>Species</u>
Potassium resinate	Non-sensitizer	Guinea Pig/ adult
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Non-sensitizer	Mouse/Local lymph node assay

Carcinogenicity classified.

Carcinogenic status: The components of this mixture are not known to be listed or regulated by IARC (Group 1 or 2), NTP, OSHA or ACGIH.

Germ cell mutagenicity: Not classified.

Reproductive toxicity: Suspected of damaging fertility or the unborn child (Category 2). 6,6'-DI-TERT-BUTYL-2,2'-METHYLENDI-P-CRESOL: Reproductive toxicity (oral, rats): NOAEL (no-observed adverse-effect-level), male rats=12.5 mg/kg bw/day; NOAEL, female rats=50 mg/kg bw.day. Some reproductive toxicity was seen in male rats (effects on sperm and histopathological changes in testes) during a repeated dose (oral) study.

Specific target organ toxicity (STOT) - single exposure: Not classified, d

Specific target organ toxicity (STOT) - repeated exposure: Not classified.

Aspiration hazard: Not classified (based on available data, the classification criteria are not met).

Other toxicity information: No additional information available.

SECTION 12: Ecological information

Ecotoxicity: No ecological testing has been conducted on this product. 6,6'-DI-TERT-BUTYL-2,2'-METHYLENDI-P-CRESOL: LAcute toxicity is not expected at or below the level of water solubility, TERTIARY DODECYL MERCAPTAN: This substance showed no toxicity to: fish, algae, bacteria, or invertebrates at the solubility limit.

<u>Chemical Name</u>	<u>Species</u>	<u>Acute</u>	<u>Acute</u>	<u>Chronic</u>
Potassium resinate	Fish	N/E	N/E	N/E
Potassium resinate	Invertebrates	N/E	N/E	N/E
Potassium resinate	Algae	N/E	N/E	N/E
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Fish	LC50 >4,1 mg/L (96 hours)	N/E	N/E
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Invertebrates	(>water solubility) EC50 >4.8 mg/L (48 hours)	N/E	NOEC 0.34 mg/L (> water solubility) (21 days) (>water solubility)
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Algae	EC50 >4.5 mg/L (72 hours)	N/E	NOEC 1.05 mg/L(72 hours)
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Micro-organisms	EL50 >10000 mg/L (3 hours) (OECD 209)		(>water solubility)

Persistence and degradability: No specific information available

<u>Chemical Name</u>	<u>Biodegradation</u>
Potassium resinate	Readily biodegradable (OECD 301D)
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	Not readily biodegradable (OECD 301C)

Bioaccumulative potential: No specific information available.

<u>Chemical Name</u>	<u>Bioconcentration Factor (BCF)</u>	<u>Log Kow</u>
Potassium resinate	N/E	5.046
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	400-840	6.25

Mobility in soil: No specific information available,

SOS Name: Mu-Mix Additive Emulsion

Chemical Name

Potassium resinate
6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol

Mobility in soil (Koc/Kow)

N/E
150000

Other adverse effects: No additional information available.

SECTION 13: Disposal considerations

For waste disposal purposes, this product is not known to be defined or designated as hazardous by current provisions of the Federal (EPA) Resource Conservation and Recovery Act (RCRA, 40CFR261). Incinerate waste product when in liquid form (i.e., as supplied) in a properly permitted (approved) incineration facility in accordance with federal, state and local regulations. Liquids cannot be disposed of in a landfill. Liquid product generally requires some pre-disposal treatment to separate the liquid from the polymeric portion. Typically, this is done by coagulating the polymer and removing the liquid. The liquid portion may be discharged to an industrial or public treatment works with approval of appropriate permitting authorities.

See Section 8 for recommendations on the use of personal protective equipment

SECTION 14: Transport information

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions

UN number: N/A

UN proper shipping name:

Not regulated - See Bill of Lading for Details

Transport hazard class(es):

U.S. DOT hazard class: N/A
Canada TDG hazard class: N/A
Europe ADR/RID hazard class: N/A
IMDG Code (ocean) hazard class: N/A
ICAO/IATA (air) hazard class: N/A

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

Packing group: N/A

Environmental hazards:

Marine pollutant: Not Applicable
Hazardous substance (USA): Not Applicable

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

Not Applicable

Special precautions for user: Not Applicable

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question:

U.S. federal and state regulations/legislation:

This SOS has been prepared in accordance with the hazard criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200

U.S. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Reportable Quantity (RQ) :

Not Applicable

U.S. Superfund Amendments and Reauthorization Act (SARA) - SARA Section 313:

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and 40 CFR 372:

None known

SOS Name: Mu-Mix Additive Emulsion

U.S. TSCA Section 12(b) Export Notification:

This product is not subject to TSCA 12(b) reporting requirements.

California Proposition 65:

The following ingredient(s) present in the product is [are] known to the State of California to cause cancer:

None known to be present or none in reportable amounts for occupational exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

The following ingredient(s) present in the product is [are] known to the State of California to cause birth defects or other reproductive harm:

None known to be present or none in reportable amounts for occupational exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

Notes: No additional information

Canada regulations/legislation:

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

Notes: No additional information

Chemical inventories:

<u>Regulation</u>	<u>Status</u>
Australian Inventory of Chemical Substances (AICS):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	Y
Japan Industrial Safety and Health Law (ISHL):	N
Korean Existing and Evaluated Chemical Substances (KECL):	N
New Zealand Inventory of Chemicals (NZIoC):	N
Philippines Inventory of Chemicals and Chemical Substances (PIGGS):	Y
Taiwan Inventory of Existing Chemicals:	Y
U.S. Toxic Substances Control Act (TSCA) (Active):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory (or is not on the ACTIVE inventory for U.S. TSCA); 2) no information is available; or 3) the component has not been reviewed. A "Y" for New Zealand may mean that a qualified group standard may exist for the components in this product.

Europe REACH (EC) 1907/2006: One or more applicable components of this mixture are not registered. Please contact your sales representative for further information regarding REACH compliance. REACH is only relevant to substances either manufactured or imported into the EU. REACH information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACH obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

SECTION 16: Other information

SOS Revision date: 2020-07-30

HMIS (Hazardous Materials Identification System) Ratings:

Health: 1* **Flammability:** 0 **Physical hazard:** 0 **Personal Protection:** X

NFPA (National Fire Protection Association) Ratings:

Health: 1 **Flammability:** 0 **Instability:** 0 **Special hazards:**

Key: 0=In significant; 1=Slight; 2=Moderate; 3=High; 4=Extreme. An asterisk appearing after the HMIS Health numerical rating denotes a chronic hazard.

SOS Name: Mu-Mix Additive Emulsion

Hazardous Materials Identification System (HMIS), National Paint and Coating Association, rating applies to product "as packaged" (i.e., ambient temperature). Ratings are based upon HMIS® III and NFPA 704 (2007). An asterisk appearing after the HMIS Health® III numerical rating denotes a chronic hazard. National Fire Protection Association (NFPA) rating identifies the severity of hazards of material during a fire emergency (i.e., "on fire").

Legend:

*: Trademark owned by Huntsman Corporation.

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA WEEL: American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Level (WEEL)

N/A: Not Applicable

N/E: None Established

STEL: Short Term Exposure Limit

TWA: Time Weighted Average (exposure for 8-hour workday)

Users Responsibility/Disclaimer of Liability:

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate, but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to develop appropriate work practice guidelines and employee instructional programs for your operation.

Safety Data Sheet Preparer:

Product Compliance Department