Safety Data Sheet
Revision Date: 6/21/2018

SECTION 1: Identification and Company Details

Product Name: **Roberts 2018 Tack & Crack : Part A**
Product Code: **2018**
Manufacturer/ Supplier: Roberts Consolidated Industries, Inc.
Address: 300 Cross Plains Blvd
Dalton, GA 30721
Emergency Phone: (800) 424-9300 (24-hour response/Chemtrec)
Recommended Use: Adhesive

SECTION 2: Hazard(s) Identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the Substance or mixture:
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements:

Hazard Pictograms:

Signal Word: Danger

Hazard Statements:
Harmful if inhaled.
Causes serious eye irritation.
Causes skin irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing cancer.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves. Wear eye or face protection. Wear protective clothing.
Wear respiratory protection.
Use only outdoors or in a well-ventilated area.
Do not breathe vapor.
Wash hands thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:
Get medical attention if you feel unwell.
IF exposed or concerned: Get medical attention.
IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
If experiencing respiratory symptoms: Call a POISON CENTER or

physician.
IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical attention.
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical attention.

Storage: Store locked up

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do: None known

Not result in classification/ HHNOC/PHNOC

SECTION 3: Composition / Information on Ingredients

	Weight %	CAS #
Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(methyl-1,2-ethanediyl)]	≥25 - ≤50	53862-89-8
4,4'-Methylenediphenyl Diisocyanate	≥25 - ≤50	101-68-8
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	≥5 - ≤10	5873-54-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.
There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.
Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First-Aid Measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.

Skin Contact: Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure.
Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye Contact: Causes serious eye irritation

Inhalation: Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing Difficulties if inhaled.

Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/ symptoms

Eye Contact: Adverse symptoms may include the following:
Pain or irritation
Watering
Redness

Inhalation: Adverse symptoms may include the following:
Respiratory tract irritation
Coughing
Wheezing and breathing difficulties
Asthma

Skin Contact: Adverse symptoms may include the following:
Irritation
Redness

Ingestion: No known significant effects or critical hazards.

Note to Physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific Treatment

Protection of first- aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: Fire-Fighting Measures

Extinguishing Media: Use protective gloves, goggles and suitable protective clothing.
No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Hazardous Combustion Products: No particular hazards known.

Hazardous thermal Decomposition Products: Decomposition products may include the following materials:
Carbon dioxide
Carbon monoxide
Nitrogen oxides

Protection of Firefighters: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear with a full face-piece operated in a positive pressure mode.

SECTION 6: Accidental Release Measures

Personal Precautions: Use protective gloves, goggles and suitable protective clothing.

Environmental Precautions: Do not allow product to get into drains, soil, or surface water.

Methods of Clean-up: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations

(see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7: Handling and Storage

Handling Precautions:

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures. Remove contaminated clothing and protective equipment before entering eating areas.

Storage: Keep separate from food, feedstuffs, fertilizers and other sensitive material. Store in closed original container protected from sunlight in a dry, cool and well- ventilated area, away from incompatible materials. Protect from freezing and direct sunlight. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure Control / Personal Protection

Exposure Guidelines: Not determined

Engineering Controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal Protective Equipment:

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a

specialist before handling this product.

Respiratory protection Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly [oxy(methyl-1,2-ethanediyl)]	None.	None.	None.
4,4'-Methylenediphenyl Diisocyanate	0.2 mg/m^3 CEIL	0.005 ppm 8 hours TWA	NIOSH:TWA 0.05 mg/m^3 10 hours NIOSH: CEIL 0.2 mg/m^3 10 minutes
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	None.	None.	None.

Canada

Occupational exposure limits

Chemical Name / CAS No.	CA Alberta Provincial (Canada, 4/2009)	CA British Columbia Provincial (Canada, 5/2015). Absorbed through skin. Skin sensitizer	CA Quebec Provincial (Canada, 1/2014). Skin sensitizer	CA Ontario Provincial (Canada, 7/2015)	CA Saskatchewan Provincial (Canada, 7/2013)
4,4'-Methylenediphenyl Diisocyanate	OEL: 0.05 mg/m^3 8 hours	TWA: 0.005 ppm 8 hours C: 0.01 ppm	TWAEV: 0.051 mg/m^3	TWA: 0.005 ppm 8 hours	STEL: 0.015 ppm 15 minutes. TWA: 0.005 ppm 8 hours
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	None.	TWA: 0.005 ppm 8 hours C: 0.01 ppm	None.	C: 0.02 ppm TWA: 0.005 ppm 8 hours	None.

SECTION 9: Physical and Chemical Properties

Appearance: Liquid
Odor: Slightly sweet
Relative Density: 1.09 g/cm^3
Odor Threshold: Not available
Solubility: Not Available
pH: 6 to 8 [Conc. (% w/w): 100%]
Partition Coefficient: n-octanol/water; Not determined
Melting Point: Not determined
Freezing Point: Not determined
Auto-ignition Temperature: Not determined
Flash Point: Closed cup: >93.3°C (>199.9°F)
Decomposition Temperature: Not determined

Evaporation Rate: Not determined
Viscosity: Dynamic (room temperature): 800 to 1200 mPa·s (800 to 1200 cP)
Flammability (Solid/Gas): Not applicable
Upper/Lower Flammability: Not determined
VOC Content: See section 9 of part B for VOC content
Vapor Pressure: Not Determined
Boiling Point: Not Determined

SECTION 10: Stability and Reactivity

Chemical Stability: Stable under normal temperature conditions and recommended use.
Conditions to Avoid: Excessive heat, direct sunlight and/or frost.
Materials to Avoid: Reactive or incompatible with the following materials: oxidizing materials and moisture, water, alcohols, strong bases.
Hazardous decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological Information

Acute Toxicity

Product/ingredient name	Result	Species	Dose	Exposure
4-4'-Methylenediphenyl Diisocyanate	LD50 Oral	Rat	9200 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
4-4'-Methylenediphenyl Diisocyanate	Eyes – Moderate irritant	Rabbit	-	100mg	-

Sensitization: There is no data available.

Mutagenicity: There is no data available.

Carcinogenicity Classification

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
4,4'-Methylenediphenyl Diisocyanate	-	3	-	-	-	-

Reproductive Toxicity: There is no data available.

Teratogenicity: There is no data available.

Specific target organ toxicity (single exposure)

Name	Category	Route of Exposure	Target Organs
Isocyanic acid, polymethylenepolyphenylene	Category 3	Not applicable.	Respiratory tract irritation

ester, polymer with .alpha.-hydro-.omega.-hydroxypoly [oxy(methyl-1,2-ethanediyl)			
4-4'-Methylenediphenyl Diisocyanate	Category 3	Not applicable.	Respiratory tract irritation
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of Exposure	Target Organs
Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly [oxy(methyl-1,2-ethanediyl)	Category 2	Not determined	Not determined
4-4'-Methylenediphenyl Diisocyanate	Category 2	Not determined	Not determined
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	Category 2	Not determined	Not determined

Aspiration hazard: There is no data available.

Information on the likely

routes of exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eye contact: Causes serious eye irritation
Inhalation: Harmful if inhaled. May cause respirator irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contract: Causes skin irritation. May cause an allergic skin reaction.
Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:
Pain or irritation
Watering
Redness

Inhalation: Adverse symptoms may include the following:
Respiratory tract irritation
Coughing
Wheezing and breathing difficulties
Asthma

Skin Contact: Adverse symptoms may include the following:
Irritation
Redness

Ingestion: No known significant effects or critical hazards

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards.

Long term exposure

Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards

Potential chronic health effects

General: May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Inhalation (vapors)	20.72 mg/L
Inhalation (dusts and mists)	3.942 mg/L

SECTION 12: Ecological Information

Toxicity: Not determined
Degradation: Not determined
Bioaccumulative Potential

Product/ Ingredient Name	$LogP_{ow}$	BCF	Potiential
4,4'-Methylenediphenyl Diisocyanate O-(P-Isocyanatobenzyl)Phenyl Isocyanate	4.51 4.51	200 200	Low Low

Mobility in soil
Soil/water partition coefficient (KOC): Not determined

SECTION 13: Disposal Considerations

Disposal: Dispose of waste and residues in accordance with local authority requirements. Incineration is the preferred method of disposal. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues

Wastes or Residues: Same as above.

SECTION 14: Transport Information

Road:
DOT Proper Shipping Name: **Non-Regulated**
DOT Packing Group: N/A
DOT Label: N/A
UN Number: N/A

Ocean:
Proper Shipping Name: **Non-Regulated**
Sea – IMO/IMDG Class: N/A
UN Number: N/A
Label: N/A

Packing Group: N/A
Marine Pollutant: N/A
EMS: N/A

Air: Proper Shipping Name: **Non-Regulated**
Air – ICAO/IATA Class: N/A
UN Number: N/A
Label: N/A
Sub Class: N/A
Packing Group: N/A
Pack Instr. Passenger: N/A
Pack Instr. Cargo: N/A

Additional Information: Reportable quantity:
16666.7 lbs / 7566.7 kg [1833.9 gal/ 6941.9 L]
Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

DOT – RQ Details: 4,4'-Methylenediphenyl Diisocanate 5000lbs / 2270 kg

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: Regulatory Information

U.S Federal regulations:
TSCA 8(a) PAIR: 4,4'-Methylenediphenyl Diisocyanate; O-(P-Isocyanatobenzyl)Phenyl Isocyanate
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
TSCA 8(c) calls for record of SAR: 4,4'-Methylenediphenyl Diisocyanate; O-(PIsocyanatobenzyl) Phenyl Isocyanate
United States inventory (TSCA 8b): All components are listed or exempted..
Clean Water Act (CWA) 307: 4,4'- Methylenediphenyl Dissocyanate

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances: Not Listed

Clean Air Act Section 602 Class II Substances: Not Listed

DEA List I Chemicals (Precursor Chemicals): Not Listed

DEA List II Chemicals (Essential Chemicals): Not Listed

SARA 302/304
Composition/information on ingredients
No products were found.

SARA 304 RQ : Not applicable

SARA 311/312:
Classification: Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(methyl-1,2-ethanediyl)]	No	No	No	Yes	Yes
4,4'-Methylenediphenyl Diisocyanate	No	No	No	Yes	Yes
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	No	No	No	Yes	Yes

SARA 313

	Product Name	CAS Number
Form R – Reporting requirements	4,4'-Methylenediphenyl Diisocyanate	101-68-8
Supplier Notification	4,4'-Methylenediphenyl Diisocyanate	101-68-8

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State Regulations:

Massachusetts: The following components are listed: 4,4'-Methylenediphenyl Diisocyanate

New York: The following components are listed: 4,4'-Methylenediphenyl Diisocyanate

New Jersey: The following components are listed: 4,4'-Methylenediphenyl Diisocyanate; O-(P-Isocyanatobenzyl)Phenyl Isocyanate

Pennsylvania: The following components are listed: 4,4'-Methylenediphenyl Diisocyanate; O-(P-Isocyanatobenzyl)Phenyl Isocyanate

California Prop. 65: No products were found.

Canada:

Canadian lists:

Canadian NPRI: The following components are listed: 4,4'-Methylenediphenyl Diisocyanate

CEPA Toxic substances: None of the components are listed.

Canada inventory: All components are listed or exempted.

SECTION 16: Other Information

This Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Hazardous Products Regulation (WHMIS 2015)

HMIS RATING: HEALTH-2, FLAMMABILITY-0, REACTIVITY-0, PERSONAL PROTECTION- 0.

Prepared by: Roberts Product Safety & Regulatory Compliance Group,

The information herein is given in good faith, but no warranty expressed or implied is made. Roberts urges users of this product to evaluate its suitability and compliance with local regulations as Roberts cannot foresee the final use of the product, nor the final location of usage.
Date of issue 11/14/2017

SECTION 1: Identification and Company Details

Product Name: **Roberts 2018 Tack & Crack :Part B**
Product Code: **2018**
Manufacturer/ Supplier: Roberts Consolidated Industries, Inc.
Address: 300 Cross Plains Blvd
Dalton, GA 30721
Emergency Phone: (800) 424-9300 (24-hour response/Chemtrec)
Recommended Use: Adhesive

SECTION 2: Hazard(s) Identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the Substance or mixture:

SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2B
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
AQUATIC HAZARD (ACUTE) – Category 3
AQUATIC HAZARD (LONG-TERM) – Category 3

GHS label elements:

Hazard Pictograms:

Signal Word: Warning

Hazard Statements:

Causes skin and eye irritation.
May cause an allergic skin reaction.
Suspected of causing cancer.
Harmful to aquatic life with long lasting effects

Precautionary Statements

Prevention:

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves. Wear eye or face protection. Wear protective clothing.
Avoid release to the environment
Avoid breathing vapor
Wash hands thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:

IF exposed or concerned: Get medical attention.
If experiencing respiratory symptoms: Call a POISON CENTER or physician.
IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical attention.
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical attention.

Storage: Store locked up

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do: None known

Not result in classification/ HHNOC/PHNOC

SECTION 3: Composition / Information on Ingredients

	Weight %	CAS #
Castor oil	≥50 - ≤75	8001-79-4
1,3-Benzenediamine, 4-methyl-2,6-bis(methylthio)-	≥5 - ≤10	102093-68-5
Titanium dioxide	≥3 - ≤5	13463-67-7
1,3-Benzenediamine, 2-methyl-4,6-bis(methylthio)-	≥1 - ≤3	104983-85-9
Carbon black, respirable powder	≥0.3 - <1	1333-86-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.
Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First-Aid Measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin Contact: Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye Contact: Causes eye irritation

Inhalation: No known significant effects or critical hazards

Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/ symptoms

Eye Contact: Adverse symptoms may include the following:
Pain or irritation
Watering
Redness

Inhalation: No known significant effects or critical hazards

Skin Contact: Adverse symptoms may include the following:
Irritation
Redness

Ingestion: No known significant effects or critical hazards.

Note to Physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific Treatment

Protection of first- aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: Fire-Fighting Measures

Extinguishing Media: Use fire- extinguishing media appropriate for surrounding materials.

Hazardous Combustion Products: No particular hazards known.

Specific hazards arising from the Chemical: This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal Decomposition Products: Decomposition products may include the following materials:
Carbon dioxide
Carbon monoxide
Nitrogen oxides
Sulfur oxides
Metal oxide/oxides

Protection of Firefighters: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear with a full face-piece operated in a positive pressure mode.

SECTION 6: Accidental Release Measures

Personal Precautions: Use protective gloves, goggles and suitable protective clothing.
No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods of Clean-up: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7: Handling and Storage

Protective Measures: Put on appropriate personal protective equipment (see section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure – obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: Exposure Control / Personal Protection

Exposure Guidelines: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure Controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Personal Protective Equipment

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use

Control parameters

United States

Occupational exposure limits

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Castor oil	None.	None.	None.
1,3-Benzenediamine, 4-methyl-2,6-bis(methylthis)-Titanium dioxide	TWA: 15 mg/m^3 8 hours. Form: Total Dust	TWA: 10mg/m^3 8 hours	None.
1,3-Benzenediamine, 2-methyl-2,6-bis(methylthis)-Carbon black, respirable powder	TWA: 3.5 mg/m^3 8 hours	TWA: 3 mg/m^3 8 hours. Form: inhalable fraction	NIOSH TWA: 3.5 mg/m^3 10 hours NIOSH TWA: 0.1 mg of PAHs/cm^3 10 hours

Canada

Occupational exposure limits

Chemical Name / CAS No.	CA Alberta Provincial (Canada, 4/2009)	CA British Columbia Provincial (Canada, 5/2015).	CA Quebec Provincial (Canada, 1/2014).	CA Ontario Provincial (Canada, 7/2015)	CA Saskatchewan Provincial (Canada,

					7/2013)
Titanium dioxide	OEL: 10 mg/m³ 8 hours.	TWA: 3 mg/m³ 8 hours. Form: Respirable dust TWA: 10 mg/m³ 8 hours. Form: Total dust	TWAEV: 10 mg/m³ 8 hours. Form: Total dust	TWA: 10 mg/m³ 8 hours	STEL: 20 mg/m³ 15 minutes. TWA: 10 mg/m³ 8 hours.
Carbon black, respirable powder	OEL: 3.5 mg/m³ 8 hours.	TWA: 3 mg/m³ 8 hours. Form: inhalable	TWAEV: 3.5 mg/m³ 8 hours.	TWA: 3 mg/m³ 8 hours. Form: inhalable ffraction	STEL: 7 mg/m³ 15 minutes. TWA: 3.5 mg/m³ 8 hours

SECTION 9: Physical and Chemical Properties

Appearance: Liquid
Odor: Sweet
Relative Density: 1.04 g/cm³
Odor Threshold: Not available
Solubility: Slightly soluble
pH: 6 to 8 [Conc. (% w/w): 100%]
Partition Coefficient: Not determined
Melting Point: Not determined
Freezing Point: Not determined
Auto-ignition Temperature: Not determined
Flash Point: Closed cup: >93.3°C (>199.9°F)
Decomposition Temperature: Not determined
Evaporation Rate: Not determined
Viscosity: Dynamic (room temperature): 3000 to 7000 mPa·s (3000 to 7000 cP)
Flammability (Solid/Gas): Not determined
Upper/Lower Flammability: Not determined
VOC Content: < 5 g/L
Vapor Pressure: Not Determined
Boiling Point: Not Determined

SECTION 10: Stability and Reactivity

Chemical Stability: Stable under normal temperature conditions and recommended use.
Conditions to Avoid: No specific data.
Materials to Avoid: Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition Products: oxides of carbon and nitrogen

SECTION 11: Toxicological Information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Castor oil	LD50 Oral	Rat	10 g/kg	-
Carbon black, respirable powder	LD50 Oral	Rat	>15400 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Castor oil	Eyes – Mild irritant	Rabbit	-	500 mg	-
	Skin – Mild irritant	Guinea pig	-	24 hours 100 mg	-
	Skin – Mild irritant	Man	-	48 hours 50 mg	-
	Skin – Mild irritant	Rat	-	24 hours 100 mg	-
	Skin – Severe irritant	Rabbit	-	24 hours 100 mg	-

Sensitization: There is no data available.

Mutagenicity: There is no data available.

Carcinogenicity

Classification

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
Titanium dioxide	-	2B	-	A4	-	+
Zeolites	-	3	-	A4	-	-
Carbon black, respirable powder	-	2B	-	A3	-	+

Reproductive toxicity: There is no data available.

Teratogenicity: There is no data available.

Specific target organ toxicity (single exposure): There is no data available.

Specific target organ toxicity (repeated exposure): There is no data available.

Aspiration hazard: There is no data available.

Information on the likely routes of exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eye contact: Causes serious eye irritation
Inhalation: No known significant effects or critical hazards.
Skin contract: Causes skin irritation. May cause an allergic skin reaction.
Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:
Pain or irritation
Watering
Redness

Inhalation: Adverse symptoms may include the following:
Respiratory tract irritation
Coughing
Wheezing and breathing difficulties
Asthma

Skin Contact: Adverse symptoms may include the following:
Irritation
Redness

Ingestion: No known significant effects or critical hazards

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards.

Long term exposure

Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards

Potential chronic health effects

General: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards

Acute toxicity estimates

Route	ATE value
Oral	4347.8 mg/kg

SECTION 12: Ecological Information

Toxicity: Not determined

Product/ Ingredient Name	Result	Species	Exposure
Titanium dioxide	Acute LC50 3 mg/L fresh water	Crustceans – ceriodaphnia dubia – Neonate	48 hours
Carbon black, respirable powder	Acute LC50 6.5 m/L Fresh water	Daphnia – Daphnia pulex – Neonate	48 hours
	Acute LC50 >1000000 µg/L Marine water	Fish- Fundulus heteroclitus	96 hours
	Acute EC50 37.563 mg/L Fresh water	Daphnia- Daphnia magna - Neonate	48 hours

Degradation: Not determined
Bioaccumulative Potential Not determined

Mobility in soil
Soil/water partition coefficient (KOC): Not determined

SECTION 13: Disposal Considerations

Disposal: Dispose of waste and residues in accordance with local authority requirements. Incineration is the preferred method of disposal. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues

Wastes or Residues: Same as above.

SECTION 14: Transport Information

Road: DOT Proper Shipping Name: **Non-Regulated**
DOT Packing Group: N/A
DOT Label: N/A
UN Number: N/A

Ocean: Proper Shipping Name: **Non-Regulated**

Sea – IMO/IMDG Class: N/A
UN Number: N/A
Label: N/A
Packing Group: N/A
Marine Pollutant: N/A
EMS: N/A

Air: Proper Shipping Name: **Non-Regulated**
Air – ICAO/IATA Class: N/A
UN Number: N/A
Label: N/A
Sub Class: N/A
Packing Group: N/A
Pack Instr. Passenger: N/A
Pack Instr. Cargo: N/A

Additional Information: Reportable quantity:
16666.7 lbs / 7566.7 kg [1833.9 gal/ 6941.9 L]
Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

DOT – RQ Details: 4,4'-Methylenediphenyl Diisocanate 5000lbs / 2270 kg

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: Regulatory Information

U.S. Federal regulations **TSCA 8(a) PAIR**: Dimethylbis[(1-oxoneodecyl)oxy]stannane
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
Clean Air Act Section 602 Class I Substances: Not listed
Clean Air Act Section 602 Class II Substances: Not listed
DEA List I Chemicals (Precursor Chemicals): Not listed
DEA List II Chemicals (Essential Chemicals): Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ: Not applicable.

SARA 311/312

Classification: Immediate (acute) health hazard. Delayed (chronic) health hazard

Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Castor oil	No.	No.	No.	Yes.	No.
1,3-Benzenediamine, 4-methl-2,6-bis(methylthio)-	No.	No.	No.	Yes.	No.
Titanium dioxide	No.	No.	No.	No.	Yes.
1,3-Benzenediamine, 2-methl-2,6-bis(methylthio)-	No.	No.	No.	Yes.	No.
Carbon black, respirable powder	No.	No.	No.	No.	Yes.

SARA 313

There is no data available.

State regulations

Massachusetts: The following components are listed: Titanium dioxide
New York: None of the components are listed.
New Jersey: The following components are listed: Titanium dioxide; Carbon black, respirable powder
Pennsylvania: The following components are listed: Titanium dioxide; Carbon black, respirable powder

California Prop. 65

WARNING**:** This product can expose you to chemicals including Titanium dioxide and Carbon Black, which is known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Titanium dioxide	Yes.	No.	No.	No.
Carbon black, respirable powder	Yes.	No.	No.	No.

Canada

Canadian lists

Canadian NPRI: None of the components are listed.
CEPA Toxic substances: None of the components are listed.
Canada inventory: Not determined

SECTION 16: Other Information

This Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Hazardous Products Regulation (WHMIS 2015)

HMIS RATING: HEALTH-3, FLAMMABILITY-1, REACTIVITY-0, PERSONAL PROTECTION- 0.

Prepared by: ROBERTS Product Safety & Regulatory Compliance Group,

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