

# SAFETY DATA SHEET



Date of issue/Date of revision 1 May 2019

Version 14

## Section 1. Identification

**Product name** : HIGH SOLIDS URETHANE HARDENER

**Product code** : DFH535

**Other means of identification** : Not available.

**Product type** : Liquid.

### Relevant identified uses of the substance or mixture and uses advised against

**Product use** : Industrial applications.

**Use of the substance/ mixture** : Coating. Paints. Painting-related materials.

**Uses advised against** : Not applicable.

**Manufacturer** : PPG Industries, Inc.  
One PPG Place,  
Pittsburgh, PA 15272

**Emergency telephone number** : (412) 434-4515 (U.S.)  
(514) 645-1320 (Canada)  
01-800-00-21-400 or + 52 55 5559 1588 (Mexico)

**Technical Phone Number** : 1-800-647-6050

## Section 2. Hazards 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** : FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY (inhalation) - Category 4  
RESPIRATORY SENSITIZATION - Category 1  
SKIN SENSITIZATION - Category 1  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 42% (Oral), 42% (Dermal), 44.8% (Inhalation)

### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

## Section 2. Hazards identification

<b>Hazard statements</b>	: Flammable liquid and vapor. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause respiratory irritation.
<b><u>Precautionary statements</u></b>	
<b>Prevention</b>	: Wear protective gloves. Wear eye or face protection. Wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Contaminated work clothing must not be allowed out of the workplace.
<b>Response</b>	: 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 (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention.
<b>Storage</b>	: Store locked up. Store in a well-ventilated place. Keep cool.
<b>Disposal</b>	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Supplemental label elements</b>	: Moisture-sensitive material. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Skin contact to isocyanate monomer may lead to allergic lung reaction. Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. 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 contact with skin and clothing. Wash thoroughly after handling. Emits toxic fumes when heated.
<b>Hazards not otherwise classified</b>	: Prolonged or repeated contact may dry skin and cause irritation.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: Mixture
<b>Product name</b>	: HIGH SOLIDS URETHANE HARDENER

## Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers (isocyanurate type)	≥20 - ≤50	53880-05-0 (EC 931-312-3)
Hexamethylene diisocyanate, oligomers	≥20 - ≤44	28182-81-2
heptan-2-one	≥10 - ≤18	110-43-0
2-methoxy-1-methylethyl acetate	≥1.0 - ≤5.0	108-65-6
n-butyl acetate	≤1.8	123-86-4
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	<1.0	4098-71-9

SUB codes represent substances without registered CAS Numbers.

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

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

### Description of necessary first aid measures

- Eye contact** : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
wheezing and breathing difficulties  
asthma

## Section 4. First aid measures

- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness  
dryness  
cracking
- Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes 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.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon oxides  
nitrogen oxides  
Cyanate and isocyanate.  
hydrogen cyanide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- 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).

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.
- Special provisions** : 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). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13). Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : 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. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Special precautions** : Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapors are heavier than air and may spread along floors. If this material is part of a multiple component system, read the Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.
- Advice on general occupational hygiene** : 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Do not store below the following temperature: 5°C (41°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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. Precautions should be taken to minimize exposure to atmospheric humidity or water. CO<sub>2</sub> will be formed, which, in closed containers, could result in pressurization.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers (isocyanurate type)	IPEL (PPG). TWA: 0.5 mg/m <sup>3</sup> STEL: 1 mg/m <sup>3</sup>
Hexamethylene diisocyanate, oligomers	IPEL (PPG). TWA: 0.5 mg/m <sup>3</sup> STEL: 1 mg/m <sup>3</sup>
heptan-2-one	ACGIH TLV (United States, 3/2018). TWA: 233 mg/m <sup>3</sup> 8 hours. TWA: 50 ppm 8 hours.

## Section 8. Exposure controls/personal protection

2-methoxy-1-methylethyl acetate	<b>OSHA PEL (United States, 5/2018).</b> TWA: 465 mg/m <sup>3</sup> 8 hours. TWA: 100 ppm 8 hours. <b>IPEL (PPG, 10/2017). Absorbed through skin.</b> TWA: 30 ppm STEL: 90 ppm
n-butyl acetate	<b>OSHA PEL (United States, 5/2018).</b> TWA: 710 mg/m <sup>3</sup> 8 hours. TWA: 150 ppm 8 hours. <b>ACGIH TLV (United States, 3/2018).</b> STEL: 150 ppm 15 minutes. TWA: 50 ppm 8 hours. <b>ACGIH TLV (United States, 3/2018).</b> TWA: 0.005 ppm 8 hours.
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	<b>OSHA PEL (United States, 5/2018).</b> <b>Absorbed through skin.</b> TWA: 5 mg/m <sup>3</sup> , (as CN) 8 hours.

### Key to abbreviations

A	= Acceptable Maximum Peak	S	= Potential skin absorption
ACGIH	= American Conference of Governmental Industrial Hygienists.	SR	= Respiratory sensitization
C	= Ceiling Limit	SS	= Skin sensitization
F	= Fume	STEL	= Short term Exposure limit values
IPEL	= Internal Permissible Exposure Limit	TD	= Total dust
OSHA	= Occupational Safety and Health Administration.	TLV	= Threshold Limit Value
R	= Respirable	TWA	= Time Weighted Average
Z	= OSHA 29 CFR 1910.1200 Subpart Z - Toxic and Hazardous Substances		

### Consult local authorities for acceptable exposure limits.

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Appropriate 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. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures





## Section 8. Exposure controls/personal protection

Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	: Safety glasses with side shields.
Skin protection	
Hand 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.
Gloves	: butyl rubber
Body protection	: 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other skin protection	: 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	: By spraying: air-fed respirator. By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Restrictions on use	: Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

## Section 9. Physical and chemical properties

### Appearance

Physical state	: Liquid.
Color	:  Clear.
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: Not available.
Boiling point	: >37.78°C (>100°F)
Flash point	: Closed cup: 45°C (113°F)
Material supports combustion.	:  Yes.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Flammability (solid, gas)	: Not available.



## Section 9. Physical and chemical properties

Lower and upper explosive (flammable) limits	: Not available.
Evaporation rate	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: 1.06
Density ( lbs / gal )	: 8.85
Solubility	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	: Not available.
Viscosity	: Kinematic (40°C (104°F)): >0.21 cm <sup>2</sup> /s (>21 cSt)
Volatility	: 31% (v/v), 24.688% (w/w)
% Solid. (w/w)	: 75.312

## Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: In a fire, hazardous decomposition products may be produced. Refer to protective measures listed in sections 7 and 8.
Incompatible materials	: Keep away from: oxidizing agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.
Hazardous decomposition products	: Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Hexamethylene diisocyanate, oligomers	LD50 Dermal	Rabbit	>2000 mg/kg	-
heptan-2-one	LD50 Oral	Rat - Female	>2500 mg/kg	-
	LC50 Inhalation Vapor	Rat	16.7 mg/l	4 hours
	LD50 Dermal	Rabbit	10.206 g/kg	-
	LD50 Oral	Rat	1.6 g/kg	-
2-methoxy-1-methylethyl acetate	LD50 Dermal	Rabbit	>5 g/kg	-
	LD50 Oral	Rat	8532 mg/kg	-

## Section 11. Toxicological information

n-butyl acetate	LC50 Inhalation Vapor	Rat	>21.1 mg/l	4 hours
	LC50 Inhalation Vapor	Rat	2000 ppm	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
	LD50 Oral	Rat	10.768 g/kg	-
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	LC50 Inhalation Dusts and mists	Rat	0.04 mg/l	4 hours
	LD50 Dermal	Rabbit	1060 mg/kg	-
	LD50 Oral	Rat	4825 mg/kg	-

**Conclusion/Summary** : There are no data available on the mixture itself.

### Irritation/Corrosion

#### Conclusion/Summary

**Skin** : There are no data available on the mixture itself.

**Eyes** : There are no data available on the mixture itself.

**Respiratory** : There are no data available on the mixture itself.

### Sensitization

Product/ingredient name	Route of exposure	Species	Result
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers (isocyanurate type)	skin	Guinea pig	Sensitizing

#### Conclusion/Summary

**Skin** : There are no data available on the mixture itself.

**Respiratory** : There are no data available on the mixture itself.

### Mutagenicity

**Conclusion/Summary** : There are no data available on the mixture itself.

### Carcinogenicity

**Conclusion/Summary** : There are no data available on the mixture itself.

### Reproductive toxicity

**Conclusion/Summary** : There are no data available on the mixture itself.

### Teratogenicity

**Conclusion/Summary** : There are no data available on the mixture itself.

### Specific target organ toxicity (single exposure)

Name	Category
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers (isocyanurate type)	Category 3
Hexamethylene diisocyanate, oligomers	Category 3
heptan-2-one	Category 3
n-butyl acetate	Category 3
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	Category 3

### Specific target organ toxicity (repeated exposure)

Not available.

## Section 11. Toxicological information

### Target organs

- : Contains material which causes damage to the following organs: brain, central nervous system (CNS).  
Contains material which may cause damage to the following organs: kidneys, peripheral nervous system, upper respiratory tract, skin, eye, lens or cornea.

### Aspiration hazard

Not available.

### Information on the likely routes of exposure

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
**Skin contact** : Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.  
**Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.  
**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  
dryness  
cracking  
**Ingestion** : No specific data.

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

- Conclusion/Summary** : There are no data available on the mixture itself. Skin contact to isocyanate monomer may lead to allergic lung reaction. Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Repeated exposure may lead to permanent respiratory disability. Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone. If splashed in the eyes, the liquid may cause irritation and reversible damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

### Short term exposure

## Section 11. Toxicological information

**Potential immediate effects** : There are no data available on the mixture itself.

**Potential delayed effects** : There are no data available on the mixture itself.

### Long term exposure

**Potential immediate effects** : There are no data available on the mixture itself.

**Potential delayed effects** : There are no data available on the mixture itself.

### Potential chronic health effects

**General** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : No known significant effects or critical hazards.

**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
Oral	5130.1 mg/kg
Inhalation (vapors)	13.5 mg/l
Inhalation (dusts and mists)	1.619 mg/l

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Hexamethylene diisocyanate, oligomers	Acute EC50 >1000 mg/l	Algae - scenedesmus subspicatus	72 hours
heptan-2-one	Acute EC50 >100 mg/l	Daphnia - daphnia magna	48 hours
2-methoxy-1-methylethyl acetate	Acute LC50 >100 mg/l	Fish - Danio rerio (zebra fish)	96 hours
	Acute LC50 131 mg/l	Fish	96 hours
	Acute LC50 161 mg/l Fresh water	Fish	96 hours

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
heptan-2-one	OECD 310	69 % - Readily - 28 days	-	-
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability	
Hexamethylene diisocyanate, oligomers	-	-	Not readily	
heptan-2-one	-	-	Readily	

## Section 12. Ecological information

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Hexamethylene diisocyanate, oligomers	-	3.2	low
heptan-2-one	1.98	-	low
2-methoxy-1-methylethyl acetate	0.56	-	low
n-butyl acetate	1.78	-	low

### Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. 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 emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

## 14. Transport information

	DOT	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class(es)	3	3	3
Packing group	III	III	III
Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

## 14. Transport information

### Additional information

- DOT** : This product may be re-classified as "Combustible Liquid," unless transported by vessel or aircraft. Non-bulk packages (less than or equal to 119 gal) of combustible liquids are not regulated as hazardous materials.
- IMDG** : None identified.
- IATA** : None identified.

**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

### United States

**United States inventory (TSCA 8b)** : Not determined.

### U.S. Federal regulations

#### SARA 302/304

**SARA 304 RQ** : 165672.6 lbs / 75215.4 kg [18798.3 gal / 71159.3 L]

#### Composition/information on ingredients

Name	EHS	SARA 302 TPQ		SARA 304 RQ	
		(lbs)	(gallons)	(lbs)	(gallons)
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	Yes.	500	56.7	500	56.7

### SARA 311/312

**Classification** : FLAMMABLE LIQUIDS - Category 3  
 ACUTE TOXICITY (inhalation) - Category 4  
 RESPIRATORY SENSITIZATION - Category 1  
 SKIN SENSITIZATION - Category 1  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
 HNOC - Defatting irritant

#### Composition/information on ingredients

Name	%	Classification
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers (isocyanurate type)	≥20 - ≤50	SKIN SENSITIZATION - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Hexamethylene diisocyanate, oligomers	≥20 - ≤44	COMBUSTIBLE DUSTS ACUTE TOXICITY (inhalation) - Category 4 SKIN SENSITIZATION - Category 1A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
heptan-2-one	≥10 - ≤18	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4

## Section 15. Regulatory information

n-butyl acetate	≤1.8	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 HNOC - Defatting irritant FLAMMABLE LIQUIDS - Category 2
3-isocyanatomethyl-3,5, 5-trimethylcyclohexyl isocyanate	<1.0	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 HNOC - Defatting irritant ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 1 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A RESPIRATORY SENSITIZATION - Category 1A SKIN SENSITIZATION - Category 1A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Additional environmental information is contained on the Environmental Data Sheet for this product, which can be obtained from your PPG representative.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health : 3 \* Flammability : 2 Physical hazards : 1

(\*) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on MSDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

### National Fire Protection Association (U.S.A.)

Health : 3 Flammability : 2 Instability : 1

Date of previous issue : 12/30/2018

Organization that prepared the MSDS : EHS

Key to abbreviations : ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
UN = United Nations

Indicates information that has changed from previously issued version.

### Disclaimer



## Section 16. Other information

*The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.*