# SAFETY DATA SHEET

**Date of issue/Date of revision** 13 November 2026

**Version** 4.02

## Section 1. Identification

**Product name** : PPG VERSAFLEX 234 - A

**Product code** : 00465025

**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, Professional applications, Used by spraying.

**Use of the substance/ mixture** : Coating.

**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)
SETIQ Interior de la República: 800-00-214-00 (México)
SETIQ Ciudad de México: (55) 5559-1588 (México)

**Technical Phone Number** : 888-977-4762

## 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** : 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

Percentage of the mixture consisting of ingredient(s) of unknown acute toxicity: 38.1% (oral), 77.3% (dermal), 34.9% (inhalation)

**GHS label elements**

# Section 2. Hazards identification

**Hazard pictograms** :



**Signal word** : Danger

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

**Precautionary statements**

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

**Response** : IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or doctor. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. 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 advice or attention.

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

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

**Supplemental label elements** : Moisture-sensitive material. 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. Emits toxic fumes when heated.

**Hazards identified when used** : Photosensitive agents : In case of accidental eye contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation or blistering occurs after contact. In case of accidental skin contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation, rash or blistering occurs after contact.

**Hazards not otherwise classified** : None known.

# Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture
**Product name** : PPG VERSAFLEX 234 - A

| Ingredient name | % | CAS number |
|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | 10 - 30 | 101-68-8 |
| Isocyanic acid, polymethylenepolyphenylene ester | 10 - 30 | 9016-87-9 |
| o-(p-isocyanatobenzyl)phenyl isocyanate | 10 - 30 | 5873-54-1 |
| propylene carbonate | 7 - 13 | 108-32-7 |
| 2,2'-methylenediphenyl diisocyanate | 1 - 5 | 2536-05-2 |
| methylenediphenyl diisocyanate | 1 - 5 | 26447-40-5 |
| 2-ethylhexyl 3,5,5-trimethylhexanoate | 0.5 - 1.5 | 70969-70-9 |
| 2,4-dioxo-1,3-diazetidine-1,3-diylbis[p-phenylenemethylene-p-phenylene] diisocyanate | 0.1 - 1 | 17589-24-1 |
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl) | 0.1 - 1 | 57636-09-6 |

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.
In case of accidental eye contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation or blistering occurs after contact.

**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.
In case of accidental skin contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation, rash or blistering occurs after contact.

**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

# Section 4. First aid measures

**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 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 an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

**Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

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

# Section 5. Fire-fighting measures

**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.

**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. Do not breathe vapor. 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. 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. 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. 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.

**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 above the following temperature: 50°C (122°F). 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.
Precautions should be taken to minimize exposure to atmospheric humidity or water. $CO_2$ 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 |
|---|---|
| 4,4'-methylenediphenyl diisocyanate | **ACGIH TLV (United States, 1/2007)**<br>TWA 8 hours: 0.05 mg/m³.<br>**OSHA PEL (United States, 5/2018)**<br>CEIL: 0.02 ppm.<br>CEIL: 0.2 mg/m³. |
| Isocyanic acid, polymethylenepolyphenylene ester | **CA Alberta Provincial (Canada, 3/2023)**<br>OEL 8 hours: 0.07 mg/m³.<br>OEL 8 hours: 0.005 ppm. |
| o-(p-isocyanatobenzyl)phenyl isocyanate | None. |
| propylene carbonate | None. |
| 2,2'-methylenediphenyl diisocyanate | None. |
| methylenediphenyl diisocyanate | None. |
| 2-ethylhexyl 3,5,5-trimethylhexanoate | None. |

# Section 8. Exposure controls/personal protection

| | |
|---|---|
| 2,4-dioxo-1,3-diazetidine-1,3-diylbis[p-phenylenemethylene-p-phenylene] diisocyanate | None. |
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl) | None. |

**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** : 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.

**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

**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** : Chemical splash goggles.

### 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** : polyethylene 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.

**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.

# Section 8. Exposure controls/personal protection

**Respiratory protection** : Use an air-fed respirator unless a site-specific assessment determines that an air-fed respirator is not necessary, in which case the results of the risk assessment should be utilized to determine whether respiratory protection is necessary and what type of protection is appropriate. 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.
The respiratory protection shall be in accordance to 29 CFR 1910.134.

**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** : Various

**Odor** : Faint odor.

**pH** : Not applicable.

**Melting point** : Not available.

**Boiling point** : >37.78°C (>100°F)

**Flash point** : Closed cup: 167°C (332.6°F)

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Flammability** : Not available.

**Lower and upper explosive (flammable) limits** : Not available.

**Vapor pressure** : Not available.

**Vapor density** : Not available.

**Relative density** : 1.17

**Density ( lbs / gal )** : 9.76

**Solubility(ies)** :

| Media | Result |
|---|---|
| cold water | Not soluble |

**Partition coefficient: n-octanol/water** : Not applicable.

**Viscosity** : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C (104°F)): >21 $mm^2/s$ (>21 cSt)

**% Solid. (w/w)** : 89.443

**Particle characteristics**

**Median particle size** : Not applicable.

# 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** : Depending on conditions, decomposition products may include the following materials:
Cyanate and isocyanate. carbon oxides nitrogen oxides hydrogen cyanide

# Section 11. Toxicological information

## Information on toxicological effects

### Acute toxicity

| Product/ingredient name | Result | Dose |
|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | Rat - Oral - LD50 | 9200 mg/kg |
| Isocyanic acid, polymethylenepolyphenylene ester | Rat - Oral - LD50 | 49 g/kg |
| | Rabbit - Dermal - LD50 | >9400 mg/kg |
| propylene carbonate | Rat - Oral - LD50 | 29 g/kg |
| methylenediphenyl diisocyanate | Rat - Oral - LD50 | >10000 mg/kg |
| | Rabbit - Dermal - LD50 | >9400 mg/kg |
| 2-ethylhexyl 3,5,5-trimethylhexanoate | Rat - Female - Oral - LD50 | ≥5000 mg/kg |

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

### Skin corrosion/irritation

| Product/ingredient name | Species | Dose | Score |
|---|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | Rabbit - Skin - Irritant | - | - |

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

### Serious eye damage/eye irritation

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

### Respiratory corrosion/irritation

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

### Sensitization

# Section 11. Toxicological information

| Product/ingredient name | Species | Result |
|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | Mouse - skin<br>OECD 429<br>Guinea pig - Respiratory | Sensitizing<br><br>Sensitizing |
| methylenediphenyl diisocyanate | Guinea pig - skin<br>OECD 406<br>Guinea pig - Respiratory | Sensitizing<br><br>Sensitizing |

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

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

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

**Carcinogenicity**

| Product/ingredient name | Species | Result |
|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | Rat - Inhalation - TC<br>OECD 453<br>0 to 6 mg/m³ [5 days per week] [2 years] | Result: Positive |

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

**Classification**

| Product/ingredient name | OSHA | IARC | NTP |
|---|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | - | 3 | - |
| Isocyanic acid, polymethylenepolyphenylene ester | - | 3 | - |

**Carcinogen Classification code:**
**IARC: 1, 2A, 2B, 3, 4**
**NTP: Known to be a human carcinogen; Reasonably anticipated to be a human carcinogen**
**OSHA: +**
**Not listed/not regulated: -**

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

**Specific target organ toxicity (single exposure)**

| Product/ingredient name | Result |
|---|---|
| 4,4'-methylenediphenyl diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| Isocyanic acid, polymethylenepolyphenylene ester | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| o-(p-isocyanatobenzyl)phenyl isocyanate | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| 2,2'-methylenediphenyl diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| methylenediphenyl diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| 2,4-dioxo-1,3-diazetidine-1,3-diylbis[p-phenylenemethylene-p-phenylene] diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| Isocyanic acid, polymethylenepolyphenylene | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) |

# Section 11. Toxicological information

| | |
|---|---|
| ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl) | (Respiratory tract irritation) - Category 3 |

**Specific target organ toxicity (repeated exposure)**

| Product/ingredient name | Result |
|---|---|
| 4,4'-methylenediphenyl diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (respiratory system) (inhalation) - Category 2 |
| Isocyanic acid, polymethylenepolyphenylene ester | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (inhalation) - Category 2 |
| o-(p-isocyanatobenzyl)phenyl isocyanate | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| 2,2'-methylenediphenyl diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| methylenediphenyl diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| 2-ethylhexyl 3,5,5-trimethylhexanoate | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (adrenal) (oral) - Category 2 |
| 2,4-dioxo-1,3-diazetidine-1,3-diylbis[p-phenylenemethylene-p-phenylene] diisocyanate | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (nose/sinuses) (inhalation) - Category 2 |
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl) | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (nose/sinuses) (inhalation) - Category 2 |

**Target organs** : Contains material which causes damage to the following organs: lungs, upper respiratory tract, eyes, nose/sinuses, throat.
Contains material which may cause damage to the following organs: skin, adrenal.

## Information on the likely routes of exposure

### 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

# Section 11. Toxicological information

**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. Acrylate components of the mixture have irritating properties. Prolonged or repeated contact with skin or mucous membrane may result in irritation symptoms, such as redness, blistering, dermatitis etc. May cause allergic skin reactions with repeated exposure. The inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract. Ingestion may cause nausea, weakness and central nervous system effects. If splashed in the eyes, the liquid may cause irritation and reversible damage. 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

**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

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

**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.

**Reproductive toxicity** : No known significant effects or critical hazards.

## Numerical measures of toxicity

### Acute toxicity estimates

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|---|---|---|---|---|

# Section 11. Toxicological information

| | | | | | |
|---|---|---|---|---|---|
| PPG VERSAFLEX 234 - A | N/A | N/A | N/A | 16.3 | 2.7 |
| 4,4'-methylenediphenyl diisocyanate | 9200 | N/A | N/A | 11 | N/A |
| Isocyanic acid, polymethylenepolyphenylene ester | 49000 | N/A | N/A | N/A | 1.5 |
| o-(p-isocyanatobenzyl)phenyl isocyanate | N/A | N/A | N/A | 11 | 1.5 |
| propylene carbonate | 29000 | N/A | N/A | N/A | N/A |
| 2,2'-methylenediphenyl diisocyanate | N/A | N/A | N/A | 11 | 1.5 |
| methylenediphenyl diisocyanate | N/A | N/A | N/A | 11 | 1.5 |
| 2,4-dioxo-1,3-diazetidine-1,3-diylbis[p-phenylenemethylene-p-phenylene] diisocyanate | N/A | N/A | N/A | N/A | 1.5 |
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly (oxy-1,2-ethanediyl) | N/A | N/A | N/A | N/A | 1.5 |

# Section 12. Ecological information

## Toxicity

| Product/ingredient name | Result | Species |
|---|---|---|
| methylenediphenyl diisocyanate | Acute - LC50<br>>100 mg/l [96 hours] | Fish |

**Conclusion/Summary** : Not available.

## Persistence and degradability

| Product/ingredient name | Result |
|---|---|
| 2-ethylhexyl 3,5,5-trimethylhexanoate | OECD [Ready Biodegradability - Manometric Respirometry Test]<br>59% [28 days] - Inherent |

**Conclusion/Summary** : Not available.

## Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | 4.51 | - | High |
| o-(p-isocyanatobenzyl) phenyl isocyanate | 4.51 | - | High |
| propylene carbonate | -0.41 | - | Low |
| 2,2'-methylenediphenyl diisocyanate | 5.22 | - | High |
| methylenediphenyl diisocyanate | 4.51 | - | High |
| 2-ethylhexyl 3,5,5-trimethylhexanoate | 7.14 to 7.19 | - | High |

## Mobility in soil

**Soil/Water partition coefficient** : Not available.

# Section 12. Ecological information

# 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. 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** | UN3082 | Not regulated. | Not regulated. |
| **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(PAINT RELATED MATERIAL) | - | - |
| **Transport hazard class (es)** | 9 | - | - |
| **Packing group** | III | - | - |
| **Environmental hazards** | No. | No. | No. |
| **Marine pollutant substances** | Not applicable. | Not applicable. | Not applicable. |
| **Product RQ (lbs)** | 18144.7 | Not applicable. | Not applicable. |
| **RQ substances** | (4,4'-methylenediphenyl diisocyanate) | Not applicable. | Not applicable. |

**Additional information**

**DOT** : The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials.

**IMDG** : None identified.

**IATA** : None identified.

# 14. Transport information

**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.

**Transport in bulk according to IMO instruments** : Not applicable.

# Section 15. Regulatory information

## United States

**United States inventory (TSCA 8b)** : All components are active or exempted.

### SARA 302/304

**SARA 304 RQ** : Not applicable.

**Composition/information on ingredients**

No products were found.

### SARA 311/312

**Classification** : 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

**Composition/information on ingredients**

| Name | % | Classification |
|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | ≥20 - ≤44 | ACUTE TOXICITY (inhalation) - Category 4<br>SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2A<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1A<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| Isocyanic acid, polymethylenepolyphenylene ester | ≥10 - ≤20 | ACUTE TOXICITY (inhalation) - Category 4<br>SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2A<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1A<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| o-(p-isocyanatobenzyl)phenyl | ≥10 - ≤20 | ACUTE TOXICITY (inhalation) - Category 4 |

# Section 15. Regulatory information

| | | |
|---|---|---|
| isocyanate | | SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2A<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1A<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| propylene carbonate | ≥10 - ≤20 | EYE IRRITATION - Category 2A |
| 2,2'-methylenediphenyl diisocyanate | ≥0.10 - ≤2.6 | ACUTE TOXICITY (inhalation) - Category 4<br>SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2A<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1A<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| methylenediphenyl diisocyanate | ≥0.10 - ≤2.6 | ACUTE TOXICITY (inhalation) - Category 4<br>SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2A<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1A<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| 2-ethylhexyl 3,5,5-trimethylhexanoate | ≥1.0 - ≤5.0 | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| 2,4-dioxo-1,3-diazetidine-1,3-diylbis[p-phenylenemethylene-p-phenylene] diisocyanate | <1.0 | ACUTE TOXICITY (inhalation) - Category 4<br>SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2B<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1B<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl) | <1.0 | COMBUSTIBLE DUSTS<br>ACUTE TOXICITY (inhalation) - Category 4<br>SKIN IRRITATION - Category 2<br>EYE IRRITATION - Category 2B<br>RESPIRATORY SENSITIZATION - Category 1A<br>SKIN SENSITIZATION - Category 1B<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |

# Section 15. Regulatory information

## SARA 313

**Supplier notification** :

| Chemical name | CAS number | Concentration |
|---|---|---|
| 4,4'-methylenediphenyl diisocyanate | 101-68-8 | 10 - 30 |
| Isocyanic acid, polymethylenepolyphenylene ester | 9016-87-9 | 10 - 30 |

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.

**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

**Please refer to Section 2 of this document for GHS hazard classifications.**
**The customer is responsible for determining the PPE code for this material.**

**Date of previous issue** : **10/9/2026**

**Organization that prepared the SDS** : 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)
N/A = Not available
SGG = Segregation Group
UN = United Nations

**Indicates information that has changed from previously issued version.**

## Disclaimer

*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.*