
SECTION 1: Identification

1.1 GHS Product identifier

Product name 84001-25
EURO 221 URETHANE CLEARCOAT NATIONAL RULE - ACTIVATOR FAST

Product number
Brand

1.2 Other means of identification

Hexamethylene Diisocyanate Poly Isocyanate

1.3 Recommended use of the chemical and restrictions on use

For Professional Use Only.

1.4 Supplier's details

Name EXCEL PRODUCTS
Address PO BOX 24631
WEST PALM BEACH, FLORIDA
33416 - USA

Telephone T 800-957-0848
Fax
email info@excelproducts.com
Emergency: 800 424-9300 (Chemtrec)

1.5 Emergency phone number

Chemtrec: 800-424-9300 CCN644298

SECTION 2: Hazard identification

General hazard statement

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction.

Hazard statement(s): Highly flammable liquid and vapour. Suspected of causing cancer. May damage fertility or the unborn child. May cause damage to organs (kidneys) through prolonged or repeated exposure. May cause an allergic skin reaction. Causes serious eye irritation. May cause drowsiness or dizziness. Hexaamethylene Diisocyanate Polymer reacts slowly with water to form urea. Keep product away from high moisture and/or sources of water.

Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. Suspected of damaging fertility or the unborn child. May cause damage to organs (Liver, kidneys and Lungs) through prolonged or repeated exposure. Causes skin irritation. Causes serious eye irritation.

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Flammable liquids, Cat. 1
- Toxic to reproduction, Cat. 1B
- Specific target organ toxicity (repeated exposure), Cat. 2
- Skin corrosion/irritation, Cat. 2
- Acute toxicity, inhalation, Cat. 4
- Sensitization, respiratory, Cat. 1
- Eye damage/irritation, Cat. 2A
- Sensitization, skin, Cat. 1
- Specific target organ toxicity (single exposure), Cat. 3

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

| | |
|------|---|
| H224 | Extremely flammable liquid and vapor |
| H315 | Causes skin irritation |
| H317 | May cause an allergic skin reaction |
| H319 | Causes serious eye irritation |
| H332 | Harmful if inhaled |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| H335 | May cause respiratory irritation |
| H336 | May cause drowsiness or dizziness |
| H360 | May damage fertility or the unborn child |
| H373 | May cause damage to organs through prolonged or repeated exposure |

Precautionary statement(s)

| | |
|----------------|---|
| P210 | Keep away from heat/sparks/open flames/hot surfaces. No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof electrical/ventilating/lighting equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P260 | Do not breathe dust/fume/gas/mist/vapors/spray. |
| P264 | Wash skin thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P272 | Contaminated work clothing must not be allowed out of the workplace. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P284 | [In case of inadequate ventilation] wear respiratory protection. |
| P302+P352 | IF ON SKIN: Wash with plenty of water and soap |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. |
| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
| P321 | Specific treatment (see advice on this label). |
| P332+P313 | If skin irritation occurs: Get medical advice/attention. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P337+P313 | If eye irritation persists: Get medical advice/attention. |

| | |
|-----------|---|
| P342+P311 | If experiencing respiratory symptoms: Call a POISON CENTER/doctor |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
| P363 | Wash contaminated clothing before reuse. |
| P370+P378 | In case of fire: Use Foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide to extinguish. |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P403+P235 | Store in a well-ventilated place. Keep cool. |
| P405 | Store locked up. |
| P501 | Dispose of contents/container in accordance with local, state, and federal regulations. |

2.3 Other hazards which do not result in classification

Precautionary statement(s)

Use only outdoors or in a well-ventilated area.

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

[In case of inadequate ventilation] wear respiratory protection.

Avoid breathing mist/vapours/spray.

Contaminated work clothing should not be allowed out of the workplace.

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. For large container, ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lightning equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe mist, vapors and spray. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing, eye and face protection. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Keep product away from high moisture environments or water source.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

| Component | Concentration |
|--|-------------------------------------|
| HMDI POLYMER (CAS no.: 28182-81-2; EC no.: 931-274-8) CLASSIFICATIONS: Acute toxicity, inhalation, Cat. 4; Sensitization, respiratory, Cat. 1; Sensitization, skin, Cat. 1. HAZARDS: H317 - May cause an allergic skin reaction; H332 - Harmful if inhaled; H333 - May be harmful if inhaled. | > 45 - < 55 % (weight) |
| METHYL ACETATE (CAS no.: 79-20-9; EC no.: 201-185-2; Index no.: 607-021-00-X) CLASSIFICATIONS: Flammable liquids, Cat. 2; Specific target organ toxicity (single exposure), Cat. 3; Serious eye damage/eye irritation, Cat. 2. HAZARDS: H225 - Highly flammable liquid and vapor; H335 - May cause respiratory irritation; H336 - May cause drowsiness or dizziness. | > 15 - < 25 % (weight) |
| N-Butyl acetate (CAS no.: 123-86-4; EC no.: 204-658-1; Index no.: 607-025-00-1) CLASSIFICATIONS: Flammable liquids, Cat. 3; STOT SE 3 (Central Nervous System). HAZARDS: H226 - Flammable liquid and vapor; H335 - May cause respiratory irritation; H336 - May cause drowsiness or dizziness. | > 25 - < 35 % (weight) |

Trade secret statement (OSHA 1910.1200(i))

Any concentration shown as a < % weight is to protect confidentiality or is due to batch variation.

There are no additional ingredients within the current knowledge of the supplier.

Concentrations are classified and although require reporting in this section.

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice

In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

| | |
|--|--|
| If inhaled | Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapors, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. |
| In case of skin contact | Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterized by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be inter cellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| In case of eye contact | Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn). |
| If swallowed | Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum. |
| Personal protective equipment for first-aid responders | Obtain exposure TWA time to understand saturation of vapors potentially inhaled. |

4.2 Most important symptoms/effects, acute and delayed

Effects: (acute or delayed): Inhalation of high concentrations vapors can cause narcotic effect. May cause irritation of eyes and respiratory tract. May cause skin irritation. Following repeated or prolonged contact, it has a degreasing effect on the skin. In high concentration, can cause depression of the central nervous system. May cause kidney damage.

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

No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Foam.
Dry chemical powder.
BCF (where regulations permit).
Carbon dioxide.
Water spray or fog - Large fires only. Use water spray

5.2 Specific hazards arising from the chemical

N-Butyl acetate: Avoid contamination with oxidizing agents.

HEXAMETHYLENE DIISOCYANATE POLYMER :

Combustible. Slight fire hazard when exposed to heat or flame. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit irritating/ toxic fumes.

May emit acrid smoke. Mists containing combustible materials may be explosive. May emit poisonous fumes.

May emit corrosive fumes.

METHYL ACETATE:

Carbon oxides

Combustible. Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapors possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

5.3 Special protective actions for fire-fighters

Alert Fire Brigade and tell them location and nature of hazard.

Wear full body protective clothing with breathing apparatus.

Prevent, by any means available, spillage from entering drains or water course.

Use water delivered as a fine spray to control fire and cool adjacent area.

Avoid spraying water onto liquid pools.

DO NOT approach containers suspected to be hot.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire. Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protection recommended in Section 8.

As an immediate precautionary measure, isolate spill or leak area in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate enclosed areas.

6.2 Environmental precautions

Keep out of drains, sewers, ditches, and waterways.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. DO NOT allow clothing wet with material to stay in contact with skin. Avoid contact with skin, eyes and clothing. Avoid breathing vapors, spray mists or sanding dust. In case of insufficient ventilation, wear suitable respiratory equipment.

7.2 Conditions for safe storage, including any incompatibilities

Keep workplace dry. Do not allow product to come into contact with water. Store below 120F to avoid building vapor pressure in container. Keep container tightly closed. Keep out of the reach of children.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. HMDI POLYMER (CAS: 28182-81-2)

REL-TWA (Inhalation): 0.005 ppm; USA (NIOSH)
8 hrs ACGIH TLVs and BEI Book, 2016

STEL (Inhalation): 0.020 ppm; USA (NIOSH)
ACGIH TLVs and BEI Book, 2016

TWA (Inhalation): 0.005 ppm; USA (ACGIH)
8 hrs ACGIH TLVs and BEI Book, 2016

2. Methyl acetate (CAS: 79-20-9)

ST (Inhalation): 250 ppm, 760 mg/m³; USA (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

TWA (Inhalation): 200 ppm, 610 mg/m³; USA (OSHA)
OSHA Annotated Table Z-1, www.osha.gov

3. N-Butyl acetate (CAS: 123-86-4 EC: 204-658-1)

REL (Inhalation): 150 ppm, (ST) 200 ppm (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

TWA (Inhalation): 150 ppm, 710 mg/m³ (OSHA)
OSHA Annotated Table Z-1, www.osha.gov

8.2 Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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

Pictograms



Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body protection

Wear protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respirator selection must be based upon known or anticipated exposure levels., the hazards of the product and the safe working limits of the selected respirator. If the workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Thermal hazards

No data available

Environmental exposure controls

Do not let product enter drains. Emissions from ventilation or work process equipment should be checked to ensure they comply with 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.

SECTION 9: Physical and chemical properties and safety characteristics

| | |
|--|--|
| Physical state | Liquid |
| Appearance | Clear liquid |
| Color | Clear |
| Odor | Moderate Organic Solvent |
| Odor threshold | No data available |
| pH | No data available |
| Melting point/freezing point | 55.44C (130F) |
| Boiling point or initial boiling point and boiling range | >250F |
| Flash point | 18C/47F |
| Evaporation rate | >1(ether = 1) |
| Flammability | High |
| Lower and upper explosion limit/flammability limit | Upper limit: 7.76% at 25C; Lower limit: 14.7% at 25C |
| Vapor pressure | 15.2 kpa at 55C |
| Relative vapor density | No data available |
| Density and/or relative density | 1.0049 |
| Solubility | Immiscible |
| Partition coefficient n-octanol/water (log value) | No data available |
| Auto-ignition temperature | >400F |
| Decomposition temperature | >500F |
| Kinematic viscosity | No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |

Particle characteristics

No data available.

Supplemental information regarding physical hazard classes

No data available.

Further safety characteristics (supplemental)

Vol % Solids: 43.1
Wt % Volatiles: 51.01
VOC Regulatory: 4.27 lb/gal (511.74 g/L)
VOC Actual: 4.27 lb/gal (511.74 g/L)

SECTION 10: Stability and reactivity

10.1 Reactivity

None under normal use conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No dangerous or polymerization reactions will not occur under normal conditions of use.

---Possibility of hazardous reactions:---

can decompose violently in contact with: Water

Release of: Carbon dioxide (CO₂)

Risk of explosion with: Alcohols with Bases

Exothermic reaction with: Alcohols amides, Amines, Oxidizing agents, Strong acids and Strong bases, Mercaptans, phenols

10.4 Conditions to avoid

Contact with water and incompatible materials. Sources of ignition. Exposure to heat.

10.5 Incompatible materials

HEXAMETHYLENE DIISOCYANATE POLYMER : See section 7

METHYL ACETATE: rubber, various plastics

N-Butyl acetate: Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents

10.6 Hazardous decomposition products

N-Butyl acetate: Carbon oxides

HEXAMETHYLENE DIISOCYANATE POLYMER : See section 5

METHYL ACETATE: In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion Symptoms (including delayed and immediate effects):

Inhalation: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Acute toxicity

LD50 Oral - Rat - male - 746 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 0.124 mg/l - vapor (OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 7,000 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation

HEXAMETHYLENE DIISOCYANATE POLYMER : Product: No date available

hexamethylene diisocyanate polymer

TOXICITY

IRRITATION

Dermal (rabbit) LD50: >5000 mg/kg

Skin (rabbit): 500 mg - moderate

Inhalation (rat) LC50: 18500 mg/m³/1h

Inhalation (rat) LC50: 390000 mg/m³/4h

Oral (rat) LD50: >10000 mg/kg

METHYL ACETATE: LD50 Oral - Rat - male - 6,482 mg/kg (OECD Test Guideline 401)

Inhalation: No data available

Symptoms: Possible damages: Irritation symptoms in the respiratory tract.

LD50 Dermal - Rat - male and female - > 2,000 mg/kg (OECD Test Guideline 402)

ATE (inhalation, gaseous) of mixture: 8181.82 ppmv

Skin corrosion/irritation

May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Skin corrosion/irritation

Skin - Rabbit Result: Corrosive after 1 to 4 hours of exposure - 4 h (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit Result: Causes serious eye damage. (OECD Test Guideline 405)

HEXAMETHYLENE DIISOCYANATE POLYMER : hexamethylene diisocyanate

TOXICITY

IRRITATION

Dermal (rabbit) LD50: 593 mg/kg

Eye: adverse effect observed (irritating)

Inhalation (mouse) LC50: 30 mg/m³

Skin: adverse effect observed

(corrosive)

Inhalation (rat) LC50: 60 mg/m³/4h

Skin: adverse effect observed (irritating)

Intravenous (Mouse) LD50: 5.6 mg/kg

Oral (mouse) LD50: 350 mg/kg

Oral (rat) LD50: 738 mg/kg

METHYL ACETATE:

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/irritation

Eyes - Rabbit

Result: Causes serious eye damage. (OECD Test Guideline 405)

HEXAMETHYLENE DIISOCYANATE POLYMER : hexamethylene diisocyanate polymer

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterized by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

METHYL ACETATE:

Eyes - Rabbit

Result: Irritating to eyes.

(OECD Test Guideline 405)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: positive

(OECD Test Guideline 406)

Sensitisation test: - Guinea pig

Result: positive

HEXAMETHYLENE DIISOCYANATE POLYMER : hexamethylene diisocyanate

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance.

Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

for 1,6-hexamethylene diisocyanate:

Exposures to HDI are often associated with exposures to its prepolymers, especially to a trimeric biuretic prepolymer of HDI (HDI-BT), which is widely used as a hardener in automobile and airplane paints, and which typically contains 0.5-1% unreacted HDI. There is evidence that diisocyanate prepolymers may induce asthma at the same or greater frequency as the monomers; therefore, there is a need to assess the potential for human exposure to prepolymeric HDI as well as monomeric HDI.

1,6-Hexamethylene diisocyanate is corrosive to the skin and the eye.

1,6-Hexamethylene diisocyanate was found to induce dermal and respiratory sensitization in animals and humans. There is no threshold known for this effect.

Inhalation studies with repeated exposures to 1,6-hexamethylene diisocyanate vapor show that the respiratory tract is the target with 1,6-hexamethylene diisocyanate showing primarily upper respiratory tract lesions (nasal cavity).

1,6-Hexamethylene diisocyanate did not show a neurotoxic effect in a combined reproduction / developmental / neurotoxicity study. Life-time inhalation exposure to rats revealed a progression of non-neoplastic respiratory tract lesions, primarily to the nasal cavity, and represented the sequelae of non-specific irritation. Based on the presence of only reversible tissue responses to irritation at the low concentration of 0.005 ppm, this concentration was a NOAEL. No carcinogenic potential in rats was observed after life-time inhalation.

1,6-Hexamethylene diisocyanate showed no mutagenic activity in vitro in bacterial and in mammalian cell test systems.

1,6-Hexamethylene diisocyanate showed no clastogenic activity in vivo.

1,6-Hexamethylene diisocyanate has no effect on fertility and post-natal viability through post-natal day 4 in the rat after inhalation up to 0.299 ppm. The overall NOEL was 0.005 ppm.

Inhalation of 1,6-hexamethylene diisocyanate during the pregnancy of rats produced maternal effects (nasal turbinate histopathology) at concentrations ³ 0.052 ppm. No developmental toxicity was observed up to 0.308 ppm. for diisocyanates:

In general, there appears to be little or no difference between aromatic and aliphatic diisocyanates as toxicants. In addition, there are insufficient data available to make any major distinctions between polymeric (<1000 MW) and monomeric diisocyanates. Based on repeated dose studies in animals by the inhalation route, both aromatic and aliphatic diisocyanates appear to be of high concern for pulmonary toxicity at low exposure levels. Based upon a very limited data set, it appears that diisocyanate prepolymers exhibit the same respiratory tract effects as the monomers in repeated dose studies. There is also evidence that both aromatic and aliphatic diisocyanates are acutely toxic via the inhalation route. Most members of the diisocyanate category have not been tested for carcinogenic potential. Though the aromatic diisocyanates tested positive and the one aliphatic diisocyanate tested negative in one species, it is premature to make any generalizations about the carcinogenic potential of aromatic versus aliphatic diisocyanates. In the absence of more human data, it would be prudent at this time to assume that both aromatic and aliphatic diisocyanates are respiratory sensitisers. Diisocyanates are moderate to strong dermal sensitisers in animal studies. Skin irritation studies performed on rabbits and guinea pigs indicate no difference in the effects of aromatic versus aliphatic diisocyanates.

For monomers, effects on the respiratory tract (lungs and nasal cavities) were observed in animal studies at exposure concentrations of less than 0.005 mg/L. The experimental animal data available on prepolymeric diisocyanates show similar adverse effects at levels that range from 0.002 mg/L to 0.026 mg/L.

There is also evidence that both aromatic and aliphatic diisocyanates are acutely toxic via the inhalation route

Oncogenicity: Most members of the diisocyanate category have not been tested for carcinogenic potential. Commercially available Poly-MDI was tested in a 2-year inhalation study in rats. The tested material contained 47% aromatic 4,4'-methylenediphenyl diisocyanate (MDI) and 53% higher molecular weight oligomers. Interim sacrifices at one year showed that males and females in the highest dose group (6 mg/m³) had treatment related histological changes in the nasal cavity, lungs and mediastinal lymph nodes. The incidence and severity of degeneration and basal cell hyperplasia of the olfactory epithelium and Bowman's gland hyperplasia were increased in males at the mid and high doses and in females at the high dose following the two year exposure period. Pulmonary adenomas were found in 6 males and 2 females, and pulmonary adenocarcinoma in one male in the high dose group. However, aliphatic hexamethylene diisocyanate (HDI) was found not to be carcinogenic in a two year repeated dose study in rats by the inhalation route. HDI has not been tested in mice by the inhalation route. Though the oral route is not an expected route of exposure to humans, it should be noted that in two year repeated dose studies by the oral route, aromatic toluene diisocyanate (TDI) and 3,3'-dimethoxy-benzidine-4,4'-diisocyanate (dianisidine diisocyanate, DADI) were found to be carcinogenic in rodents. TDI induced a statistically significant increase in the incidence of liver tumors in rats and mice as well as dose-related hemangiosarcomas of the circulatory system and has been classified by the Agency as a B2 carcinogen. DADI was found to be carcinogenic in rats, but not in mice, with a statistically increase in the incidence of pancreatic tumors observed.

Respiratory and Dermal Sensitization:

Based on the available toxicity data in animals and epidemiologic studies of humans, aromatic diisocyanates such as TDI and MDI are strong respiratory sensitizers. Aliphatic diisocyanates are generally not active in animal models for respiratory sensitization. However, HDI and possibly isophorone diisocyanate (IPDI), are reported to be associated with respiratory sensitization in humans. Symptoms resulting from occupational exposure to HDI include shortness of breath, increased bronchoconstriction reaction to histamine challenges, asthmatic reactions, wheezing and coughing. Two case reports of human exposure to IPDI by inhalation suggest IPDI is a respiratory sensitizer in humans. In view of the information from case reports in humans, it would be prudent at this time to assume that both

aromatic and aliphatic diisocyanates are respiratory sensitizers. Studies in both human and mice using TDI, HDI, MDI and dicyclohexylmethane-4,4'-diisocyanate (HMDI) suggest cross-reactivity with the other diisocyanates, irrespective of whether the challenge compound was an aliphatic or aromatic diisocyanate. Diisocyanates are moderate to strong dermal sensitizers in animal studies. There seems to be little or no difference in the level of reactivity between aromatic and aliphatic diisocyanates.

Dermal Irritation: Skin irritation studies performed on rabbits and guinea pigs indicate no difference in the effects of aromatic versus aliphatic diisocyanates. The level of irritation ranged from slightly to severely irritating to the skin. One chemical, hydrogenated MDI (1,1-methylenebis(4-isocyanatocyclohexane)), was found to be corrosive to the skin in guinea pigs.

METHYL ACETATE: No data available

Germ cell mutagenicity

Test Type:

Ames test Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA)

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA)

METHYL ACETATE: Test Type:

Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471 Result: negative

Test Type: In vivo micronucleus test Species: Rat Cell type: Bone marrow Application Route: Inhalation

Method: OECD Test Guideline 474 Result: negative

Carcinogenicity

IARC:

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP:

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA:

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

N-Butyl acetate:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH

Reproductive toxicity

No data available

Summary of evaluation of the CMR properties

No data available

METHYL ACETATE: Mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vivo micronucleus test

Species: Rat

Cell type: Bone marrow

Application Route: Inhalation

Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

*TOXICITY:

typ. dose mode specie amount units other

TCLo ihl hmn 15000 mg/m3

LCLo ihl rat 32000 ppm/4H

LDLo scu rat 8000 mg/kg

LCLo ihl mus 34 gm/m3/4H

LCLo ihl cat 67 gm/m3/1H

LDLo scu cat 3000 mg/kg

LD50 orl rbt 3705 mg/kg

LD50 idu rbt 3700 mg/kg

LDLo scu gpg 3000 mg/kg
LD50 unr mam 214 mg/kg

*AQTX/TLM96: Not available

***SAX TOXICITY EVALUATION:**

THR: Moderately toxic by several routes. A human systemic irritant by inhalation. A moderate skin and severe eye irritant. Mutagenic data.

*CARCINOGENICITY: Not available

***MUTATION DATA:**

test lowest dose | test lowest dose

----- | -----
sln-smc 33800 ppm |

*TERATOGENICITY: Not available

***STANDARDS, REGULATIONS & RECOMMENDATIONS:**

OSHA: Federal Register (1/19/89) and 29 CFR 1910.1000 Subpart Z

Transitional Limit: PEL-TWA 200 ppm [610]

Final Limit: PEL-TWA 200 ppm; STEL 250 ppm [610]

ACGIH: TLV-TWA 200 ppm; STEL 250 ppm [610]

NIOSH Criteria Document: None

NFPA Hazard Rating: Health (H): 1

Flammability (F): 3

Reactivity (R): 0

H1: Materials only slightly hazardous to health (see NFPA for details).

F3: Materials which can be ignited under almost all normal temperature conditions (see NFPA for details).

R0: Materials which are normally stable even under fire exposure conditions and which are not reactive with water (see NFPA for details).

***OTHER TOXICITY DATA:**

Skin and Eye Irritation Data:

skn-rbt 500 mg/24H MLD

skn-rbt 20 mg/24H MOD

eye-rbt 100 mg/24H SEV

Review: Toxicology Review

Standards and Regulations: DOT-Hazard: Flammable liquid; Label: Flammable liquid

Status: EPA TSCA Chemical Inventory, 1986

EPA TSCA Section 8(e) Status Report 8EHQ-0378-0114

Meets criteria for proposed OSHA Medical Records Rule

N-Butyl acetate:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH

STOT-single exposure

N-Butyl acetate: 123-86-4:

Target Organs: Central Nervous system Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects

Inhalation - May cause respiratory irritation. - Respiratory system

METHYL ACETATE:

May cause drowsiness or dizziness. - Central nervous system Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

STOT-repeated exposure

No data available

Aspiration hazard

No data available

Additional information

Stability in water - 5 - 10 min at 20 °C

Remarks: Hydrolyzes on contact with water.

SECTION 12: Ecological information

Toxicity

N-Butyl acetate: 123-86-4:

Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 18 mg/l Exposure time: 96 h

Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (WATER flea)): 44 mg/l Exposure time: 48 h Test Type: static test

Harmful to aquatic life This product has no known ecotoxicological effects.

Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - > 77.4 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria

----Component: Hexamethylene Diisocyanate----

Endpoint Test Duration (hr) Species Value Source

LC50 96 Fish 22mg/L

EC50 72 Algae or other aquatic plants >77.4mg/L

NOEC 72 Algae or other aquatic plants 4.9mg/L

HEXAMETHYLENE DIISOCYANATE POLYMER :

Not Available

hexamethylene diisocyanate polymer

LC50 96 Fish 8.9mg/L (Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicit)

EC50 48 Crustacea 127mg/L (Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicit)

EC50 72 Algae or other aquatic plants >1-mg/L (Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicit)

EC0 24 Crustacea >=1-mg/L (Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicit)

hexamethylene diisocyanate

LC50 96 Fish 22mg/L (IUCLID Toxicity Data)

EC50 72 Algae or other aquatic plants >77.4mg/L (Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity)
NOEC 72 Algae or other aquatic plants 4.9mg/L (Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity)

METHYL ACETATE:

Toxicity to fish static test LC50 - Danio rerio (zebra fish) - 250 - 350 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 1,026.7 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - > 120 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria static test EC50 - Pseudomonas putida - 6,000 mg/l - 16 h (DIN 38412)

Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 42 % - Not readily biodegradable.

(OECD Test Guideline 301F)

---Water/Soil Persistence, Persistence Air---

hexamethylene diisocyanate polymer--- Water/Soil/Air: HIGH

hexamethylene diisocyanate--- Water/Soil/Air: LOW

HEXAMETHYLENE DIISOCYANATE POLYMER : hexamethylene diisocyanate polymer Water/Soil HIGH Air HIGH

hexamethylene diisocyanate Water/Soil LOW Air LOW

METHYL ACETATE: Biodegradability aerobic - Exposure time 28 d

Result: 70 % - Readily biodegradable.

(OECD Test Guideline 301D)

N-Butyl acetate: No data available

Bioaccumulative potential

hexamethylene diisocyanate

polymer LOW (LogKOW = 7.5795)

hexamethylene diisocyanate LOW (LogKOW = 3.1956)

HEXAMETHYLENE DIISOCYANATE POLYMER : hexamethylene diisocyanate polymer LOW (LogKOW = 7.5795)

hexamethylene diisocyanate LOW (LogKOW = 3.1956)

METHYL ACETATE: No data available

Mobility in soil

hexamethylene diisocyanate

polymer LOW (KOC = 18560000)

hexamethylene diisocyanate LOW (KOC = 5864)

HEXAMETHYLENE DIISOCYANATE POLYMER : hexamethylene diisocyanate polymer LOW (KOC = 18560000)

hexamethylene diisocyanate LOW (KOC = 5864)

METHYL ACETATE: No data available on product.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

HEXAMETHYLENE DIISOCYANATE POLYMER : No data available.

Other adverse effects

No data available

HEXAMETHYLENE DIISOCYANATE POLYMER : No data available.

METHYL ACETATE: Biological effects:

When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Discharge into the environment must be avoided.

N-Butyl acetate: Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

SECTION 13: Disposal considerations

Disposal methods

Product disposal

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Packaging disposal

Refer to section below Waste Treatment.

Waste treatment

Containers may still present a chemical hazard/ danger when empty. If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorized landfill. Where possible retain label warnings and SDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

Sewage disposal

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority. Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Bury residue in an authorized landfill. Recycle containers if possible, or dispose of in an authorized landfill.

Other disposal recommendations

Must remain in a dry environment: Stability in water - 5 - 10 min at 20 °C

Remarks: Hydrolyzes on contact with water.

SECTION 14: Transport information**DOT (US)**

UN Number: 1263

Class: 3

Packing Group: II

Proper Shipping Name: Paint Related Materials Reportable quantity (RQ): 331.87 lbs / 150.67 kg [41.834 gals / 158.36 L]. Package sizes shipped in quantities less than product RQ are not subject to the RQ transportation requirements

Marine pollutant:

Poison inhalation hazard:

IMDG

UN Number: UN1263

Class: 3

Packing Group: II

EMS Number: F-E, S-E

Proper Shipping Name: Paint Related Material

IATA

UN Number: UN1263

Class: 3

Packing Group: II

Proper Shipping Name: Paint Related Material

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations specific for the product in question****California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Canadian Domestic Substances List (DSL)

Chemical name: Acetic acid, methyl ester

CAS: 79-20-9

Chemical name: Acetic acid, butyl ester

CAS: 123-86-4

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

123-86-4 n-Butyl acetate

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

123-86-4 n-Butyl acetate

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

123-86-4 n-Butyl acetate

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know Components

n-Butyl acetate
CAS number: 123-86-4

New Jersey Right To Know Components

Common name: METHYL ACETATE
CAS number: 79-20-9

n-Butyl acetate
CAS number: 123-86-4

Pennsylvania Right To Know Components

Chemical name: Acetic acid, methyl ester
CAS number: 79-20-9

n-Butyl acetate
CAS number: 123-86-4

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Fire Hazard
Acute Health Hazard

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Toxic Substances Control Act (TSCA) Inventory

All CAS declared ingredients are on the inventory

On TSCA Inventory

WHMIS Classification

B2: Flammable liquid

15.2 Chemical Safety Assessment

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 SDSs 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.

HMIS Rating

| | |
|--------------|---|
| Health | 3 |
| Flammability | 3 |

| | |
|---------------------|---|
| Physical hazard | 0 |
| Personal protection | G |

NFPA Rating

| | |
|-------------------|---|
| Health hazard | 3 |
| Fire hazard | 3 |
| Reactivity hazard | 0 |
| Special hazard | |

SECTION 16: Other information

REV reason: Created in SDS software
Revision:0.1
Version: 1.1
Revisionist: FFalkenahgen

16.1 Further information/disclaimer

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by the manufacturer, including but not limited to the incorporation of products not specified by the manufacturer, or the use or addition of products in proportions not specified by the manufacturer. Regulatory requirements Date of previous issue

16.2 Preparation information

The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.