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| SAFETY DATA SHEET | | Revision Date: 05/26/2015 |
| | | Print Date: 6/2/2015 |
| | | SDS Number: A-201 |
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29 CFR 1910.1200 (OSHA HazCom 2012)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**Product identifier**

Trade name : Pliobond™ 20
ADHESIVE
™ Trademark, Ashland or its subsidiaries, registered in various countries

**PACKAGED AND MARKETED BY: THE RUSCOE COMPANY 485 KENMORE BLVD. AKRON OHIO 44301
PH:330-253-8148 TOLL FREE: 800-293-8148 FAX: 330-253-2933**

Recommended use of the chemical and restrictions on use

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| Details of the supplier of the safety data sheet Ashland P.O. Box 2219 Columbus, OH 43216 United States of America EHS Customer Requests@ashland.com | Emergency telephone number 1-800-ASHLAND (1-800-274-5263) Regulatory Information Number 1-800-325-3751 Product Information 614-790-3333 |
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SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids : Category 2

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitization : Category 1

Carcinogenicity : Category 1B

Specific target organ systemic toxicity - single exposure : Category 3 (Central nervous system)

Specific target organ systemic toxicity - repeated exposure : Category 2 (Skin, Nervous system, Liver, Kidney)

GHS Label element

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Hazard pictograms :



Signal Word :

Danger

Hazard Statements :

Highly flammable liquid and vapor.
 Causes skin irritation.
 May cause an allergic skin reaction.
 Causes serious eye irritation.
 May cause drowsiness or dizziness.
 May cause cancer.
 May cause damage to organs (Skin, Nervous system, Liver, Kidney) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:
 Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Keep container tightly closed.
 Ground/bond container and receiving equipment.
 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
 Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
 Wash skin thoroughly after handling.
 Use only outdoors or in a well-ventilated area.
 Contaminated work clothing must not be allowed out of the workplace.
 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 IF exposed or concerned: Get medical advice/ attention.
 If skin irritation or rash occurs: Get medical advice/ attention.
 If eye irritation persists: Get medical advice/ attention.
 Take off contaminated clothing and wash before reuse.
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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

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Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Defatter

Hazardous components

| Chemical Name | CAS-No. | Classification | Concentration (%) |
|---------------------|----------|---|-------------------|
| METHYL ETHYL KETONE | 78-93-3 | Flam. Liq. 2; H225 Eye Irrit. 2A; H319 STOT SE 3; H336 | 76.79 |
| CALCIUM CARBONATE | 471-34-1 | | 2.74 |
| PHENOL | 108-95-2 | Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1; H314 Eye Dam. 1; H318 STOT RE 2; H373 | 1.08 |
| FORMALDEHYDE | 50-00-0 | Flam. Liq. 4; H227 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1B; H314 | 0.13 |

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| | | Eye Dam. 1; H318 | |
| | | Skin Sens. 1; H317 | |
| | | Carc. 1B; H350 | |

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Call a POISON CENTRE or doctor/physician if exposed or you feel unwell.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Move to fresh air.
If unconscious place in recovery position and seek medical advice.
Consult a physician after significant exposure.
- In case of skin contact : Remove contaminated clothing. If irritation develops, get medical attention.
If on skin, rinse well with water.
Wash contaminated clothing before re-use.
If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
- If swallowed : Obtain medical attention.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Do not induce vomiting. Phenol concentrations greater than 1.5% produce irritation and greater than 5% are corrosive; vomiting can cause further damage to the mouth and throat.
Do not dilute the swallowed material, since this may enhance its absorption. Seek immediate medical attention. If possible, do not leave the individual unattended. Vomiting and diarrhea may occur spontaneously.
- Most important symptoms and effects, both acute and delayed : Ingestion of large amounts or other significant exposure to this material (or a component) may cause alkalosis.
Excessive calcium intake may cause gastrointestinal symptoms, hypertension, hypercalcemia, kidney stones, and may inhibit absorption of iron, zinc, and possibly other trace

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elements.
 Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias. Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material.
 Pulmonary edema may be delayed.
 Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
 stomach or intestinal upset (nausea, vomiting, diarrhea)
 irritation (nose, throat, airways)
 Cough
 low body temperature
 irregular heartbeat
 cyanosis (causes blue coloring of the skin and nails from lack of oxygen)
 lung edema (fluid buildup in the lung tissue)
 Convulsions
 respiratory failure
 Difficulty in breathing
 Causes skin irritation.
 May cause an allergic skin reaction.
 Causes serious eye irritation.
 May cause drowsiness or dizziness.
 May cause cancer.
 May cause damage to organs through prolonged or repeated exposure.

Notes to physician

: Phenol adsorbs to activated charcoal, and it maybe preferable to ipecac-induced emesis because seizures or coma may onset rapidly and because of the corrosive effects of phenol. A usual activated charcoal dose in adults is 30-100 g and in children is 15-30 g. Activated charcoal should be administered with, or followed by, a cathartic. If endoscopy is planned, charcoal may obscure visualization of affected areas. Gastric lavage may be indicated if it is performed soon after ingestion or in patients who are comatose or at risk of seizures. Monitor for seizures, metabolic acidosis and ventricular dysrhythmias.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Water spray
 Foam
 Alcohol-resistant foam
 Carbon dioxide (CO2)
 Dry chemical

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- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : carbon dioxide and carbon monoxide
Hydrogen cyanide (hydrocyanic acid)
nitrogen oxides (NOx)
calcium oxide
acid vapors
- Specific extinguishing methods :

Product is compatible with standard fire-fighting agents.
- Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Remove all sources of ignition.
Use personal protective equipment.
Ensure adequate ventilation.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
- Other information : Comply with all applicable federal, state, and local regulations.
Suppress (knock down) gases/vapours/mists with a water

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spray jet.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Open drum carefully as content may be under pressure.
 Avoid formation of aerosol.
 Provide sufficient air exchange and/or exhaust in work rooms.
 Do not breathe vapours/dust.
 Do not smoke.
 Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
 Container hazardous when empty.
 Take precautionary measures against static discharges.
 Avoid exposure - obtain special instructions before use.
 Avoid contact with skin and eyes.
 Smoking, eating and drinking should be prohibited in the application area.
 For personal protection see section 8.
 Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Observe label precautions.
 No smoking.
 Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---------------------|---------|----------------------------------|---|--------------|
| METHYL ETHYL KETONE | 78-93-3 | TWA | 200 ppm | ACGIH |
| | | STEL | 300 ppm | ACGIH |
| | | REL | 200 ppm 590 mg/m3 | NIOSH/GUID E |
| | | STEL | 300 ppm 885 mg/m3 | NIOSH/GUID E |
| | | PEL | 200 ppm 590 mg/m3 | OSHA_TRANS |

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|-------------------|----------|-----------|---------------------------------|-------------|
| CALCIUM CARBONATE | 471-34-1 | PEL | 5 mg/m3 Respirable fraction. | OSHA_TRANS |
| | | PEL | 15 mg/m3 Total dust. | OSHA_TRANS |
| | | REL | 5 mg/m3 Respirable. | NIOSH/GUIDE |
| | | REL | 10 mg/m3 Total | NIOSH/GUIDE |
| PHENOL | 108-95-2 | TWA | 5 ppm | ACGIH |
| | | REL | 5 ppm 19 mg/m3 | NIOSH/GUIDE |
| | | Ceil_Time | 15.6 ppm 60 mg/m3 | NIOSH/GUIDE |
| | | PEL | 5 ppm 19 mg/m3 | OSHA_TRANS |
| | | TWA | 5 ppm 19 mg/m3 | TN OEL |
| FORMALDEHYDE | 50-00-0 | Ceiling | 0.3 ppm | ACGIH |
| | | REL | 0.016 ppm | NIOSH/GUIDE |
| | | Ceil_Time | 0.1 ppm | NIOSH/GUIDE |
| | | TWA | 0.75 ppm | OSHASP |
| | | STEL | 2 ppm | OSHASP |
| | | OSHA_ACT | 0.5 ppm | OSHASP |
| | | Ceiling | 0.3 ppm | ACGIHLIS_P |

Biological occupational exposure limits

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time | Permissible concentration | Basis |
|---------------------|-------------------------|------------------------|---------------------|------------------------------|---------------------------|-----------|
| METHYL ETHYL KETONE | 78-93-3 | methylEthyl Ketone | Urine | Sampling time: End of shift. | 2 mg/l | ACGIH BEI |
| Remarks: | Nonspecific | | | | | |
| PHENOL | 108-95-2 | Phenol with hydrolysis | Creatinine in urine | Sampling time: End of shift. | 250 mg/g | |
| Remarks: | Background, Nonspecific | | | | | |

Engineering measures : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

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A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

- Hand protection
Material : natural rubber
- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.
- Skin and body protection : Wear as appropriate:
impervious clothing
Safety shoes
Flame-resistant clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Discard gloves that show tears, pinholes, or signs of wear.
Wear resistant gloves (consult your safety equipment supplier).
- Hygiene measures : Wash hands before breaks and at the end of workday.
When using do not eat or drink.
When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state : liquid
- Colour : tan
- Odour : No data available
- Odour Threshold : No data available
- pH : No data available
- Melting point/freezing point : No data available
- Boiling point/boiling range : 176 °F / 80 °C
(1013 hPa)

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Flash point : 23 °F / -5 °C
Method: Tag open cup

Evaporation rate : 1
Ethyl Ether

Flammability (solid, gas) : No data available

Upper explosion limit : 12.0 %(V)

Lower explosion limit : 2.0 %(V)

Vapour pressure : 71.0000 mmHg (68.00 °F)

Relative vapour density : 2.5AIR=1

Relative density : 0.8629 (25 °C)

Density : 0.8629 g/cm3 (25 °C)

Solubility(ies)
Water solubility : No data available

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Thermal decomposition : No data available

Viscosity
Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Vapours may form explosive mixture with air. Formaldehyde reacts with peroxides, phenol, strong acids, amines and strong oxidizing agents. Formaldehyde reacts violently with nitrogen dioxide, nitromethane, perchloric acid, perchloric acid-aniline mixtures, or peroxyformic acid to yield

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explosive compounds. It reacts with hydrochloric acid or to organic chlorides to form the carcinogen, bis(chloromethyl)ether.

Conditions to avoid : Heat, flames and sparks.
excessive heat

Incompatible materials : 1,3-butadiene
ammonium salts
aluminum
aluminum salts
Amines
Copper
Copper alloys
halogenated hydrocarbons
halogens
Iron Lead
magnesium
strong alkalis
strong mineral acids
Strong oxidizing agents
Zinc

Hazardous decomposition products : acid vapors
calcium oxide
carbon dioxide and carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Not classified based on available information.

Components:

METHYL ETHYL KETONE:

Acute oral toxicity : LD 50 (Rat): 2,300 - 3,500 mg/kg

Acute dermal toxicity : LD 50 (Rabbit): > 5 g/kg

CALCIUM CARBONATE:

Acute oral toxicity : LD 50 (Rat): 6,450 mg/kg

Acute inhalation toxicity : LC 50 (Rat): > 3 mg/l
Exposure time: 4 h
Method: OECD Test Guideline 403

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Assessment: Not classified as acutely toxic by inhalation under GHS.
Remarks: Aerosol

Acute dermal toxicity : LD 50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402

PHENOL:

Acute oral toxicity : LD 50 (Rat): 317 mg/kg

LD 50 (Mouse): 270 mg/kg
Assessment: The component/mixture is classified as acute oral toxicity, category 3.

Acute inhalation toxicity : Assessment: The component/mixture is classified as acute inhalation toxicity, category 3.

Acute dermal toxicity : LD 50 (Rabbit): 850 mg/kg

LD50 (Rat, females): 660 mg/kg
Method: OECD Test Guideline 402

FORMALDEHYDE:

Acute oral toxicity : LD 50 (Guinea pig): 260 mg/kg

LD 50 (Rat): 100 mg/kg

LD 50 (Rat, Male): 800 mg/kg
Assessment: The component/mixture is classified as acute oral toxicity, category 3.

Acute inhalation toxicity : LC 50 (Rat): 588 mg/m³
Exposure time: 4 h
Test atmosphere: gas
Assessment: The component/mixture is classified as acute inhalation toxicity, category 3.

Acute dermal toxicity : LD 50 (Rabbit): 288 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Product:

Result: Repeated exposure may cause skin dryness or cracking.

Remarks: May cause skin irritation and/or dermatitis.

Components:

METHYL ETHYL KETONE:

Result: Not irritating to skin

CALCIUM CARBONATE:

Result: Not irritating to skin

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PHENOL:
Result: Corrosive to skin

FORMALDEHYDE:
Result: Causes burns.

Serious eye damage/eye irritation
Causes serious eye irritation.

Product:
Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin., Causes serious eye irritation.

Components:
METHYL ETHYL KETONE:
Result: Irritating to eyes

CALCIUM CARBONATE:
Result: Not irritating to eyes

PHENOL:
Result: Corrosive to eyes

FORMALDEHYDE:
Result: Corrosive to eyes

Respiratory or skin sensitisation
Skin sensitisation: May cause an allergic skin reaction.
Respiratory sensitisation: Not classified based on available information.

Components:
FORMALDEHYDE:
Result: Does not cause respiratory sensitisation.

Result: May cause sensitisation by skin contact.

Germ cell mutagenicity
Not classified based on available information.

Components:
PHENOL:

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| Genotoxicity in vitro | : | Test Type: Chromosome aberration test in vitro Test species: Chinese hamster ovary cells Metabolic activation: with metabolic activation Method: OECD Test Guideline 473 Result: positive |
| | : | Test Type: Micronucleus test Test species: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487 Result: positive |
| Genotoxicity in vivo | : | Test Type: Micronucleus test Test species: Mouse (male and female) |

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Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: positive

FORMALDEHYDE:
Genotoxicity in vitro

- : Test Type: Ames test
Test species: Salmonella typhimurium
Metabolic activation: without metabolic activation
Result: positive
- : Test Type: Chromosome aberration test in vitro
Test species: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Result: positive
- : Test Type: In vitro mammalian cell gene mutation test
Test species: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Result: negative
- : Test Type: in vitro assay
Test species: Human lymphocytes
Metabolic activation: with and without metabolic activation
Result: Conflicting results have been seen in different studies.

Genotoxicity in vivo

- : Test Type: Micronucleus test
Test species: Mouse
Application Route: Oral
Result: negative
- Test Type: Micronucleus test
Test species: Mouse
Application Route: inhalation (gas)
Result: negative
- Test Type: in vivo assay
Test species: Rat
Application Route: inhalation (gas)
Result: negative
- Test Type: Mouse specific locus test
Test species: Mouse
Application Route: inhalation (gas)
Result: negative
- Test Type: Mammalian bone marrow sister chromatid
exchange
Test species: Rat
Application Route: inhalation (gas)
Result: negative
- Test Type: comet assay
Test species: Rat

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Application Route: inhalation (gas)

Result: negative

Carcinogenicity

May cause cancer.

Components:

FORMALDEHYDE:

Species: Rat

Application Route: Ingestion

Result: negative

Species: Mouse

Application Route: Dermal

Result: negative

Species: Rat

Application Route: Inhalation

Result: positive

Carcinogenicity - Assessment : Presumed to have carcinogenic potential for humans

Reproductive toxicity

Not classified based on available information.

Components:

FORMALDEHYDE:

Effects on fertility : Remarks: No data available

Effects on foetal development : Species: Rat

Result: No teratogenic effects

STOT - single exposure

May cause drowsiness or dizziness.

Components:

METHYL ETHYL KETONE:

Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure

May cause damage to organs (Skin, Nervous system, Liver, Kidney) through prolonged or repeated exposure.

Components:

PHENOL:

Target Organs: Skin

Assessment: May cause damage to organs through prolonged or repeated exposure.

Target Organs: Nervous system

Assessment: May cause damage to organs through prolonged or repeated exposure.

Target Organs: Liver

Assessment: May cause damage to organs through prolonged or repeated exposure.

Target Organs: Kidney

Assessment: May cause damage to organs through prolonged or repeated exposure.

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Repeated dose toxicity

Components:

FORMALDEHYDE:

Species: Rat

No observed adverse effect level: 82 mg/kg

Application Route: Ingestion

Species: Rat

No observed adverse effect level: 1.2 mg/m3

Application Route: inhalation (gas)

Target Organs: Nose, Upper respiratory tract

Aspiration toxicity

Not classified based on available information.

Product:

No aspiration toxicity classification

Components:

METHYL ETHYL KETONE:

May be harmful if swallowed and enters airways.

Further information

Product:

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting., Concentrations substantially above the TLV value may cause narcotic effects., Solvents may degrease the skin.

Components:

METHYL ETHYL KETONE:

Remarks: Central nervous system

PHENOL:

Remarks: Central nervous system

Remarks: Blood

Carcinogenicity:

IARC

Group 1: Carcinogenic to humans

FORMALDEHYDE 50-00-0

OSHA

OSHA specifically regulated carcinogen

FORMALDEHYDE 50-00-0

NTP

Known to be human carcinogen

FORMALDEHYDE 50-00-0

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

METHYL ETHYL KETONE:

- Toxicity to fish : LC 50 (Fathead minnow (*Pimephales promelas*)): 3,130 - 3,320 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (*Daphnia magna*)): 4,025 - 6,440 mg/l
 Exposure time: 48 h
 Test Type: static test
 Remarks: Intoxication

CALCIUM CARBONATE:

- Toxicity to fish : LC 50 (*Gambusia affinis* (Mosquito fish)): > 56,000 mg/l
 Exposure time: 96 h
 Test Type: static test

PHENOL:

- Toxicity to fish : LC 50 (*Oncorhynchus mykiss* (rainbow trout)): 7.5 - 14 mg/l
 Exposure time: 96 h
 Test Type: static test
- LC 50 (*Fathead minnow* (*Pimephales promelas*)): 67.5 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
- LC 50 (*Danio rerio* (zebra fish)): 27.8 mg/l
 Exposure time: 96 h
 Method: Static
 Remarks: Mortality

- Toxicity to daphnia and other aquatic invertebrates : EC50 (*Water flea* (*Ceriodaphnia dubia*)): 3.1 mg/l
 Exposure time: 48 h
 Test Type: static test

- Toxicity to algae : EC50 (*Pseudokirchneriella subcapitata* (green algae)): 61.1 mg/l
 Exposure time: 96 h
 Test Type: static test

- Toxicity to fish (Chronic toxicity) : NOEC (Fish): 0.077 mg/l
 Exposure time: 60 d
 Test Type: semi-static test

- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Water flea* (*Daphnia magna*)): 0.16 mg/l
 Exposure time: 16 d
 Test Type: semi-static test

| | |
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FORMALDEHYDE:

- Toxicity to fish : LC 50 (Danio rerio (zebra fish)): 41 mg/l
 Exposure time: 96 h
 Method: Static
 Remarks: Mortality
- LC 50 (Striped bass (Morone saxatilis)): 6.7 mg/l
 Exposure time: 96 h
 Method: Static
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 29 mg/l
 Exposure time: 48 h
 Method: Static
 Remarks: Intoxication
- EC 50 (Water flea (Daphnia pulex)): 5.8 mg/l
 Exposure time: 48 h
- Toxicity to algae : ErC50 (Desmodesmus subspicatus): 4.89 mg/l
 Exposure time: 72 h
- Toxicity to bacteria : EC 50 (activated sludge): 19 mg/l
 Exposure time: 3 h
 Test Type: Respiration inhibition

Persistence and degradability

Components:

PHENOL:

- Biodegradability : Result: Readily biodegradable
 Biodegradation: 62 %
 Exposure time: 100 h
 Method: OECD Test Guideline 301C

FORMALDEHYDE:

- Biodegradability : aerobic
 Result: Readily biodegradable
 Biodegradation: 90 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301D
- aerobic
 Result: Readily biodegradable
 Biodegradation: > 90 %
 Exposure time: 2 Weeks
 Method: OECD Test Guideline 301C

- Photodegradation :

| | |
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Bioaccumulative potential

Components:

METHYL ETHYL KETONE:

Partition coefficient: n-octanol/water : log Pow: 0.29

PHENOL:

Partition coefficient: n-octanol/water : log Pow: 1.46

FORMALDEHYDE:

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow <= 4).

Partition coefficient: n-octanol/water : log Pow: 0.35 (25 °C)

Mobility in soil

Components:

No data available

Other adverse effects

Product:

Additional ecological information : No data available

Components:

FORMALDEHYDE:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice

: Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Dispose of in accordance with all applicable local, state and federal regulations.

Contaminated packaging

: Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

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Do not re-use empty containers.
 Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION**International transport regulations****REGULATION**

| ID NUMBER | PROPER SHIPPING NAME | *HAZARD CLASS | SUBSIDIARY HAZARDS | PACKING GROUP | MARINE POLLUTANT / LTD. QTY. |
|-----------|----------------------|---------------|--------------------|---------------|------------------------------|
|-----------|----------------------|---------------|--------------------|---------------|------------------------------|

U.S. DOT - ROAD

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | Adhesives | 3 | II | |
|----|------|-----------|---|----|--|

U.S. DOT - RAIL

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | Adhesives | 3 | II | |
|----|------|-----------|---|----|--|

U.S. DOT - INLAND WATERWAYS

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | Adhesives | 3 | II | |
|----|------|-----------|---|----|--|

TRANSPORT CANADA - ROAD

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | ADHESIVES | 3 | II | |
|----|------|-----------|---|----|--|

TRANSPORT CANADA - RAIL

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | ADHESIVES | 3 | II | |
|----|------|-----------|---|----|--|

TRANSPORT CANADA - INLAND WATERWAYS

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | ADHESIVES | 3 | II | |
|----|------|-----------|---|----|--|

INTERNATIONAL MARITIME DANGEROUS GOODS

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | ADHESIVES | 3 | II | |
|----|------|-----------|---|----|--|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | Adhesives | 3 | II | |
|----|------|-----------|---|----|--|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | Adhesives | 3 | II | |
|----|------|-----------|---|----|--|

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

| | | | | | |
|----|------|-----------|---|----|--|
| UN | 1133 | ADHESIVOS | 3 | II | |
|----|------|-----------|---|----|--|

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*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

| | |
|------------------|----|
| Marine pollutant | no |
|------------------|----|

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|---------------------|---------|--------------------|-----------------------------|
| METHYL ETHYL KETONE | 78-93-3 | 5000 | 6511.094906 |

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA 313 Component(s)

| | | |
|--------------|----------|--------|
| PHENOL | 108-95-2 | 1.08 % |
| FORMALDEHYDE | 50-00-0 | 0.13 % |

California Prop 65

WARNING! This product contains a chemical known to the State of California to cause cancer.

| | |
|----------------------|----------|
| FORMALDEHYDE | 50-00-0 |
| VINYLCYCLOHEXENE, 4- | 100-40-3 |
| ACRYLONITRILE | 107-13-1 |
| 1,3, BUTADIENE | 106-99-0 |

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

| | |
|----------------------|----------|
| VINYLCYCLOHEXENE, 4- | 100-40-3 |
| 1,3, BUTADIENE | 106-99-0 |

The components of this product are reported in the following inventories:

TSCA : On TSCA Inventory

| | | |
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- DSL : All components of this product are on the Canadian DSL.
- AUSTR : On the inventory, or in compliance with the inventory
- ENCS : On the inventory, or in compliance with the inventory
- KECL : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECL (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

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| | | | | | | | |
|--|--|---------------|-----------|---------------------|----------|------------------------|----------|
| NFPA: | HMIS III: | | | | | | |
| <p style="text-align: center;">Flammability</p> <p style="text-align: center;">Special hazard.</p> | <table border="1"> <tr> <td>HEALTH</td> <td>2*</td> </tr> <tr> <td>FLAMMABILITY</td> <td>3</td> </tr> <tr> <td>PHYSICAL HAZARD</td> <td>0</td> </tr> </table> <p>0 = not significant, 1 =Slight, 2 = Moderate, 3 = High 4 = Extreme, * = Chronic</p> | HEALTH | 2* | FLAMMABILITY | 3 | PHYSICAL HAZARD | 0 |
| HEALTH | 2* | | | | | | |
| FLAMMABILITY | 3 | | | | | | |
| PHYSICAL HAZARD | 0 | | | | | | |

NFPA Flammable and Combustible Liquids Classification

Flammable Liquid Class IB

Full text of H-Statements referred to under sections 2 and 3.

| | |
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| | |
|------|--|
| H225 | Highly flammable liquid and vapor. |
| H227 | Combustible liquid. |
| H301 | Toxic if swallowed. |
| H311 | Toxic in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |
| H336 | May cause drowsiness or dizziness. |
| H350 | May cause cancer. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |

Sources of key data used to compile the Safety Data Sheet

Ashland internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

LCxx : Lethal Concentration, for xx percent of test population

LDxx : Lethal Dose, for xx percent of test population.

ICxx : Inhibitory Concentration for xx of a substance

Ecxx : Effective Concentration of xx

N.O.S.: Not Otherwise Specified

OECD : Organization for Economic Co-operation and Development

OEL : Occupational Exposure Limit

P-Statement : Precautionary Statement

PBT : Persistent , Bioaccumulative and Toxic

PPE : Personal Protective Equipment

| | | |
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STEL : Short-term exposure limit
 STOT : Specific Target Organ Toxicity
 TLV : Threshold Limit Value
 TWA : Time-weighted average
 vPvB : Very Persistent and Very Bioaccumulative
 WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
 DOT : Department of Transportation
 FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
 HMIRC : Hazardous Materials Information Review Commission
 HMIS : Hazardous Materials Identification System
 NFPA : National Fire Protection Association
 NIOSH : National Institute for Occupational Safety and Health
 OSHA : Occupational Safety and Health Administration
 PMRA : Health Canada Pest Management Regulatory Agency
 RTK : Right to Know
 WHMIS : Workplace Hazardous Materials Information System