

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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

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

Details of the supplier of the safety data sheet Ashland P.O. Box 2219 Columbus, OH 43216 United States of America (USA) 614-790-3333 EHSProductSafety@ashland.com	Emergency telephone number 1-800-ASHLAND (1-800-274-5263) Regulatory Information Number 1-800-325-3751 Product Information 614-790-3333
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids : Category 2

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitization : Category 1

Germ cell mutagenicity : Category 2

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)

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

GHS label elements

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.
 Suspected of causing genetic defects.
 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/doctor 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.

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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.

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	76.792
CALCIUM CARBONATE	471-34-1	This material is not considered hazardous under the OSHA Hazard Communication Standard (HazCom 2012).	2.7452
PHENOL	108-95-2	Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1; H314	1.088

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

		Eye Dam. 1; H318 Muta. 2; H341 STOT RE 2; H373	
FORMALDEHYDE	50-00-0	Flam. Liq. 4; H227 Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317 Muta. 2; H341 Carc. 1B; H350	0.136

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.

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

- 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 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.
 Suspected of causing genetic defects.

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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
- 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 (NO_x)
 calcium oxide
 acid vapors
- Specific extinguishing methods :

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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 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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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.

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
		TWA	200 ppm 590 mg/m ³	NIOSH REL
		ST	300 ppm 885 mg/m ³	NIOSH REL
		TWA	200 ppm 590 mg/m ³	OSHA Z-1
		TWA	200 ppm 590 mg/m ³	OSHA P0
		STEL	300 ppm 885 mg/m ³	OSHA P0
		PEL	200 ppm 590 mg/m ³	CAL PEL
		STEL	300 ppm 885 mg/m ³	CAL PEL
CALCIUM CARBONATE	471-34-1	PEL	10 mg/m ³ Total dust	CAL PEL
		PEL	5 mg/m ³ respirable dust	CAL PEL

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

			fraction	
		TWA	5 mg/m3 Respirable (Calcium carbonate)	NIOSH REL
		TWA	10 mg/m3 total (Calcium carbonate)	NIOSH REL
PHENOL	108-95-2	TWA	5 ppm	ACGIH
		TWA	5 ppm 19 mg/m3	NIOSH REL
		C	15.6 ppm 60 mg/m3	NIOSH REL
		TWA	5 ppm 19 mg/m3	OSHA Z-1
		TWA	5 ppm 19 mg/m3	OSHA P0
		PEL	5 ppm 19 mg/m3	CAL PEL
FORMALDEHYDE	50-00-0	C	0.3 ppm	ACGIH
		TWA	0.016 ppm	NIOSH REL
		C	0.1 ppm	NIOSH REL
		PEL	0.75 ppm	OSHA CARC
		STEL	2 ppm	OSHA CARC
		PEL	0.75 ppm	CAL PEL
		STEL	2 ppm	CAL PEL
		TWA	0.016 ppm (Formaldehyde)	NIOSH REL
		C	0.1 ppm (Formaldehyde)	NIOSH REL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
METHYL ETHYL KETONE	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ZUS_A CGIHB
PHENOL	108-95-2	Phenol	Urine	End of shift (As soon as possible)	250 mg/g Creatinine	ZUS_A CGIHB

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

				after exposure ceases)		
--	--	--	--	------------------------------	--	--

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 : 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.

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

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 resistant gloves (consult your safety equipment supplier).
 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.

Hygiene measures : Wash hands before breaks and at the end of workday.
 When using do not eat or drink.
 When using do not smoke.

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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)
Flash point	: -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/cm ³ (25 °C)
Solubility(ies)	
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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

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

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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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 : LD50 (Rat): 2,300 - 3,500 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 5 g/kg

CALCIUM CARBONATE:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
 Method: OECD Test Guideline 420
 Assessment: No adverse effect has been observed in acute oral toxicity tests.

Acute inhalation toxicity : LC50 (Rat): > 3 mg/l
 Exposure time: 4 h
 Method: OECD Test Guideline 403
 Assessment: Not classified as acutely toxic by inhalation under GHS.

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
 Method: OECD Test Guideline 402
 Assessment: Not classified as acutely toxic by dermal absorption under GHS.

PHENOL:

Acute oral toxicity : LD50 (Rat): 317 mg/kg

LD50 (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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

inhalation toxicity, category 3.

Acute dermal toxicity : LD50 (Rabbit): 850 mg/kg

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

FORMALDEHYDE:

Acute oral toxicity : LD50 (Guinea pig): 260 mg/kg

LD50 (Rat): 100 mg/kg

LD50 (Rat, male): 800 mg/kg
 Assessment: The component/mixture is classified as acute
 oral toxicity, category 3.

Acute inhalation toxicity : LC50 (Rat): 588 mg/m³

Exposure time: 4 h

Test atmosphere: gas

Assessment: The component/mixture is classified as acute
 inhalation toxicity, category 2.

Acute dermal toxicity : LD50 (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: No skin irritation

CALCIUM CARBONATE:

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

PHENOL:

Result: Corrosive to skin

FORMALDEHYDE:

Species: Rat

Exposure time: 40 min



SAFETY DATA SHEET	Revision Date: 01/07/2017
	Print Date: 5/29/2017
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.5

Result: Corrosive after 3 minutes to 1 hour of exposure

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:

Species: Rabbit

Result: Slight, transient irritation

Method: OECD Test Guideline 405

PHENOL:

Result: Corrosive

FORMALDEHYDE:

Result: Corrosive

Respiratory or skin sensitisation

Skin sensitisation: May cause an allergic skin reaction.

Respiratory sensitisation: Not classified based on available information.

Components:

CALCIUM CARBONATE:

Test Type: Local lymph node assay

Species: Mouse

Method: OECD Test Guideline 429

Result: Does not cause skin sensitisation.

FORMALDEHYDE:

Assessment: The product is a skin sensitiser, sub-category 1A.

Test Type: Maximisation Test

Species: Guinea pig

Method: OECD Test Guideline 406

Result: May cause sensitisation by skin contact.

Test Type: Buehler Test

Species: Guinea pig

Method: OECD Test Guideline 406

Result: May cause sensitisation by skin contact.

Test Type: Local lymph node assay



SAFETY DATA SHEET	Revision Date: 01/07/2017
	Print Date: 5/29/2017
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.5

Species: Mouse
Method: OECD Test Guideline 429
Result: Causes sensitisation.

Germ cell mutagenicity
Suspected of causing genetic defects.

Components:

CALCIUM CARBONATE:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test species: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

PHENOL:

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

Germ cell mutagenicity-
Assessment : In vitro tests showed mutagenic effects

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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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
 Application Route: inhalation (gas)
 Result: negative

Germ cell mutagenicity-
Assessment

: In vitro tests showed mutagenic effects which were not
 observed with in vivo test.

Carcinogenicity

May cause cancer.

Components:

FORMALDEHYDE:

Species: Rat

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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.

Repeated dose toxicity**Components:**

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

Ecotoxicology Assessment

Acute aquatic toxicity : Not classified based on available information.

Chronic aquatic toxicity : Not classified based on available information.

Components:

METHYL ETHYL KETONE:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 3,130 - 3,320 mg/l

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

Exposure time: 96 h
 Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 4,025 - 6,440 mg/l
 Exposure time: 48 h
 Test Type: static test
 Remarks: Intoxication

CALCIUM CARBONATE:

Toxicity to fish : LC50 (Gambusia affinis (Mosquito fish)): > 56,000 mg/l
 Exposure time: 96 h
 Test Type: static test

PHENOL:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 - 14 mg/l
 Exposure time: 96 h
 Test Type: static test

LC50 (Pimephales promelas (fathead minnow)): 67.5 mg/l
 Exposure time: 96 h
 Test Type: flow-through test

LC50 (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 (Daphnia magna (Water flea)): 0.16 mg/l
 Exposure time: 16 d
 Test Type: semi-static test

FORMALDEHYDE:

Toxicity to fish : LC50 (Striped bass (Morone saxatilis)): 6.7 mg/l
 Exposure time: 96 h
 Method: Static

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 29 mg/l
 Exposure time: 48 h
 Method: Static
 Remarks: Intoxication

EC50 (Daphnia pulex (Water flea)): 5.8 mg/l
 Exposure time: 48 h

Toxicity to algae : ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 4.89 mg/l
 Exposure time: 72 h

Toxicity to bacteria : EC50 (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 :

No data available

Bioaccumulative potential**Components:****METHYL ETHYL KETONE:**

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

PHENOL:



SAFETY DATA SHEET	Revision Date: 01/07/2017
	Print Date: 5/29/2017
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.5

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)

No data available

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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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	
---------	-----------	---	--	----	--

CFR_RAIL_C

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

U.S. DOT - INLAND WATERWAYS

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

TDG_ROAD_C

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

TDG_RAIL_C

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

TDG_INWT_C

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	
---------	-----------	---	--	----	--

MX_DG

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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

*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
 Fire Hazard
 Chronic Health Hazard

SARA 313

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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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

- TSCA : On TSCA Inventory
- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- ENCS : On the inventory, or in compliance with the inventory
- KECI : 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), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION**Further information**

Revision Date: 01/07/2017

NFPA:	HMIS III:						
<p style="text-align: center;">Flammability</p> <p style="text-align: center;">Special hazard.</p>	<table border="1" style="width: 100%;"> <tr> <td style="background-color: blue; color: white; text-align: center;">HEALTH</td> <td style="width: 50px;"></td> </tr> <tr> <td style="background-color: red; color: white; text-align: center;">FLAMMABILITY</td> <td></td> </tr> <tr> <td style="background-color: yellow; text-align: center;">PHYSICAL HAZARD</td> <td></td> </tr> </table> <p>0 = not significant, 1 = Slight, 2 = Moderate, 3 = High 4 = Extreme, * = Chronic</p>	HEALTH		FLAMMABILITY		PHYSICAL HAZARD	
HEALTH							
FLAMMABILITY							
PHYSICAL HAZARD							

NFPA Flammable and Combustible Liquids Classification

Flammable Liquid Class IB



SAFETY DATA SHEET	Revision Date: 01/07/2017
	Print Date: 5/29/2017
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.5

Full text of H-Statements

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.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
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

**SAFETY DATA SHEET**

Revision Date: 01/07/2017

Print Date: 5/29/2017

SDS Number: R0171288

Version: 2.5

Pliobond™ 20 ADHESIVE
 ™ Trademark, Ashland or its subsidiaries, registered
 in various countries
 121809

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
 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