	Page: 1
SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

Recommended use : ADHESIVE

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

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)

	Page: 2
SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

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.



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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.

Disposal:

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

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	Comb Dust Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311	1.088



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

		Skin Corr. 1; H314 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: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

- 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 : 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
Headache
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
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.
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.



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

: 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 (CO₂)
Carbon monoxide
Nitrogen oxides (NO_x)
Hydrogen cyanide (hydrocyanic acid)
Organic acids

Specific extinguishing methods :

Further information : Product is compatible with standard fire-fighting agents.
: 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 : In the event of fire, wear self-contained breathing apparatus.



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

for firefighters

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 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.

**SAFETY DATA SHEET**

Revision Date: 05/07/2019

Print Date: 1/29/2020

SDS Number: R0171288

Version: 2.8

Pliobond™ 20 ADHESIVE

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

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/m3	NIOSH REL
		ST	300 ppm 885 mg/m3	NIOSH REL
		TWA	200 ppm 590 mg/m3	OSHA Z-1
		TWA	200 ppm 590 mg/m3	OSHA P0
		STEL	300 ppm 885 mg/m3	OSHA P0
		PEL	200 ppm 590 mg/m3	CAL PEL
		STEL	300 ppm 885 mg/m3	CAL PEL
		CALCIUM CARBONATE	471-34-1	PEL
PEL	5 mg/m3 respirable dust fraction			CAL PEL
TWA	5 mg/m3 Respirable (Calcium carbonate)			NIOSH REL
TWA	10 mg/m3 total (Calcium carbonate)			NIOSH REL



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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	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
		TWA	0.1 ppm	ACGIH
		STEL	0.3 ppm	ACGIH

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 after exposure ceases)	250 mg/g Creatinine	ZUS_A CGIHB

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.



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

Personal protective equipment

- Respiratory protection : In the case of vapour formation use a respirator with an approved filter within the capabilities of the respirator/filter combination.
Where concentrations are above recommended limits or are unknown, or a cartridge type respirator is not adequate, wear a positive-pressure supplied-air respirator.
- Hand protection
- Material : butyl-rubber
- Break through time : 480 min
- Glove thickness : > 0.5 mm
- Remarks : The exact break through time can be obtained from the protective glove producer and this has to be observed. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- 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.

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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

Evaporation rate	: 1 Ethyl Ether = 1
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	: 2.5(Air = 1.0)
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
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,



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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 products	Carbon monoxide Carbon dioxide (CO ₂) calcium oxide Hydrocarbons Acetone

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

**SAFETY DATA SHEET**

Revision Date: 05/07/2019

Print Date: 1/29/2020

SDS Number: R0171288

Version: 2.8

Pliobond™ 20 ADHESIVE

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

Assessment: No adverse effect has been observed in acute oral toxicity tests.

Acute inhalation toxicity : LC50 (Rat): > 3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
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 inhalation toxicity, category 3.

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

LD50 (Rat, females): 660 mg/kg

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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

Assessment: Did not cause sensitisation on laboratory animals.

Method: OECD Test Guideline 429

Result: Did not cause sensitisation on laboratory animals.

PHENOL:

Test Type: Buehler Test

Exposure routes: Dermal

Species: Guinea pig

Assessment: Did not cause sensitisation on laboratory animals.

Method: OECD Test Guideline 406

Exposure routes: Dermal

Species: Mouse

Assessment: Did not cause sensitisation on laboratory animals.

Result: negative

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

Species: Mouse

Method: OECD Test Guideline 429

Result: Causes sensitisation.

Germ cell mutagenicity

Suspected of causing genetic defects.

Components:

CALCIUM CARBONATE:



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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
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.

**SAFETY DATA SHEET**

Revision Date: 05/07/2019

Print Date: 1/29/2020

SDS Number: R0171288

Version: 2.8

Pliobond™ 20 ADHESIVE

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

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

Application Route: Ingestion

Result: negative

Species: Mouse

Application Route: Dermal

Result: negative



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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:

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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Acute aquatic toxicity Category 3; Harmful to aquatic life.



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

Long-term (chronic) aquatic hazard : Chronic aquatic toxicity Category 3; Harmful to aquatic life with long lasting effects.

Components:

METHYL ETHYL KETONE:

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

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia pulex (Water flea)): 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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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 test

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 (green algae)): 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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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)

No data available

Mobility in soil**Components:****PHENOL:**

Distribution among environmental compartments : Medium: Soil
Koc: > 14 - < 73 Method: OECD Test Guideline 121

No data available

Other adverse effects**Product:**

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

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 : Dispose of in accordance with all applicable local, state and federal regulations.
The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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.

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



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
	Version: 2.8
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

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

MX DG

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ORTHO CRESOL	95-48-7	100	36765

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Respiratory or skin sensitisation
 Germ cell mutagenicity
 Carcinogenicity
 Specific target organ toxicity (single or repeated exposure)

SARA 302 :
 PHENOL 108-95-2 1.08 %

SARA 313 The following components are subject to reporting levels established by SARA Title III, Section 313:



SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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

California Prop. 65

WARNING: This product can expose you to chemicals including formaldehyde...%, 4-vinylcyclohexene, acrylonitrile, 1,3-butadiene, which is/are known to the State of California to cause cancer, and 4-vinylcyclohexene, 1,3-butadiene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

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
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On TSCA 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: 05/07/2019

NFPA:	HMIS III:
--------------	------------------

**SAFETY DATA SHEET**

Revision Date: 05/07/2019

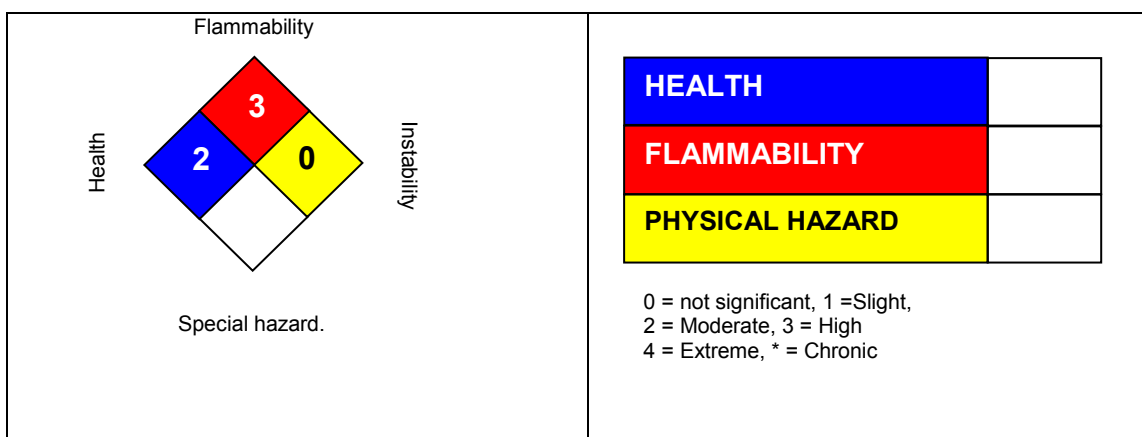
Print Date: 1/29/2020

SDS Number: R0171288

Version: 2.8

Pliobond™ 20 ADHESIVE

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

**NFPA Flammable and Combustible Liquids Classification**

Flammable Liquid Class IB

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

	Page: 27
SAFETY DATA SHEET	Revision Date: 05/07/2019
	Print Date: 1/29/2020
	SDS Number: R0171288
Pliobond™ 20 ADHESIVE ™ Trademark, Ashland or its subsidiaries, registered in various countries 121809	Version: 2.8

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).

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative