

## Material Safety Data Sheet

### Polyester Hardener

---

#### 1. PRODUCT AND COMPANY IDENTIFICATION

##### Company

Laboratoires St-Antoine  
2834 Marie-Victorin  
St-Antoine-de-Tilly, G0S 2C0  
418-886-2454

**Customer Service Telephone Number:** 1-418-886-2454

##### Emergency Information

**Transportation:** CANUTEC: (613) 996-6666  
(24 hrs., 7 days a week)

##### Product Information

**Product name:** PF-CL - Polyester Hardener  
**Synonyms:** Not available  
**Molecular formula:** Complex mixture  
**Chemical family:** Organic peroxide - ketone peroxides  
**Product use:** initiator/catalyst

#### 2. HAZARDS IDENTIFICATION

##### Emergency Overview

**DANGER!**  
**ORGANIC PEROXIDE.**  
**HAZARDOUS DECOMPOSITION MAY OCCUR.**  
**CAUSES EYE BURNS.**  
**MAY CAUSE BLINDNESS.**  
**CAUSES SKIN IRRITATION.**  
**MAY BE HARMFUL IF SWALLOWED.**  
**MAY CAUSE RESPIRATORY TRACT IRRITATION.**

##### Potential Health Effects

###### **Primary routes of exposure:**

Inhalation and skin contact.

###### **Signs and symptoms of acute exposure:**

Corrosive to the eyes and digestive tract. Causes burns. If swallowed, may cause severe irritation and injury to the mouth, throat and digestive tract. Causes skin irritation. May cause irritation of respiratory tract.

###### **Skin:**

Practically nontoxic. Severely irritating. (based on components)

---

## Material Safety Data Sheet

### Polyester Hardener

**Inhalation:**

Practically nontoxic. May cause respiratory tract irritation.

**Eyes:**

Corrosive. (based on components)

**Ingestion:**

Harmful if swallowed. Risk of burns to the mouth, oesophagus and stomach (based on components)

**Medical conditions aggravated by overexposure:**

Respiratory disease or diminished respiratory capacity. Skin disorders.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No.	Wt/Wt	WHMIS Controlled
Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester	6846-50-0	>= 30 - < 60 %	N
2-Butanone, peroxide	1338-23-4	>= 30 - < 60 %	Y
2,4-Pentanediol, 2-methyl-	107-41-5	>= 5 - < 10 %	Y
2-Butanone	78-93-3	>= 1 - < 5 %	Y
1-Butanamine, N,N-dibutyl-	102-82-9	>= 1 - < 5 %	Y
Hydrogen peroxide	7722-84-1	>= 1 - < 5 %	Y

The substance(s) marked with a "Y" in the above WHMIS Controlled column are those identified as hazardous chemicals under the Controlled Products Regulation.

### 4. FIRST AID MEASURES

**Inhalation:**

If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Skin:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eyes:**

## Material Safety Data Sheet

### Polyester Hardener

---

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Ingestion:**

If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. Rinse mouth.

#### 5. FIREFIGHTING MEASURES

**Flash point:** The flashpoint of this product is greater than the Self Acceleration Decomposition Temperature (SADT).

**Auto-ignition temperature:** No data available

**Lower flammable limit (LFL):** No data available

**Upper flammable limit (UFL):** No data available

**Extinguishing media (suitable):**

Water spray, Foam, Dry chemical

**Protective equipment:**

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

**Further firefighting advice:**

Fight fire with large amounts of water from a safe distance.

Cool closed containers exposed to fire with water spray.

Closed containers of this material may explode when subjected to heat from surrounding fire.

After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.

Do not allow run-off from fire fighting to enter drains or water courses.

Fire fighting equipment should be thoroughly decontaminated after use.

**Hazardous combustion products:**

Contact with incompatible materials or exposure to temperatures exceeding the SADT may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite.

When burned, the following hazardous products of combustion can occur:

Carbon oxides

Hazardous organic compounds

**Explosion Data:**

Sensitivity to Mechanical Impact: No

Sensitivity to Static Discharge: No

#### 6. ACCIDENTAL RELEASE MEASURES

---

## Material Safety Data Sheet

### Polyester Hardener

---

#### **In case of spill or leak:**

Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel. Ventilate the area. Eliminate all ignition sources. Avoid generation of vapors. Contain and collect spillage with non-combustible absorbent material such as clean sand, earth, diatomaceous earth or non-acidic clay and place into suitable properly labeled containers for prompt disposal. DO NOT USE peat moss. DO NOT USE vermiculite. Sweep or scoop up using non-sparking tools and place into suitable properly labeled containers for prompt disposal. The sweepings should be wetted down further with water. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Consult a regulatory specialist to determine appropriate provincial or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

## 7. HANDLING AND STORAGE

### **Handling**

#### **General information on handling:**

Contact with materials to avoid or exposure to temperatures exceeding the SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may autoignite.

Do not taste or swallow.

Do not get in eyes, on skin, or on clothing.

Avoid breathing vapor or mist.

Keep away from heat, sparks and flames.

No smoking.

Use only with adequate ventilation.

Wash thoroughly after handling.

Prevent product contamination.

Keep container tightly closed and away from combustible materials.

Keep only in the original container.

Do not reuse container as it may retain hazardous product residue.

Emptied container retains vapor and product residue.

Container hazardous when empty.

Improper disposal or reuse of this container may be dangerous and/or illegal.

### **Storage**

#### **General information on storage conditions:**

Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Outside or detached storage is preferred. Store out of direct sunlight in a cool well-ventilated place. Store in original container. Store away from combustibles and materials to avoid. Refer also to National Fire Protection Association (NFPA) Code 400, Hazardous Materials Code.

#### **Storage stability – Remarks:**

Follow the recommended storage temperatures provided in this Section in order to maintain stability and oxygen content.

#### **Storage incompatibility – General:**

Strong acids

Strong bases

Strong oxidizing agents

Reducing agents



## Material Safety Data Sheet

### Polyester Hardener

---

**Engineering controls:**

Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

**Respiratory protection:**

Avoid breathing vapor or mist. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

**Skin protection:**

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing immediately and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

**Eye protection:**

Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

<b>Color:</b>	colourless
<b>Physical state:</b>	liquid
<b>Form:</b>	oily
<b>Odor:</b>	sweet
<b>Odour Threshold:</b>	Not determined
<b>pH:</b>	No data available
<b>Density:</b>	1.0077 g/cm <sup>3</sup> 68 °F (20 °C)
<b>Specific Gravity (Relative density):</b>	1.0088 68 °F (20 °C) Water=1 (liquid)
<b>Vapor pressure:</b>	5.20 mmHg (66 °F (19 °C))
<b>Vapor density:</b>	No data available

---

## Material Safety Data Sheet

### Polyester Hardener

---

<b>Boiling point/boiling range:</b>	Decomposes before boiling. Rate of decomposition increases with rising temperature.
<b>Freezing point:</b>	No data available
<b>Evaporation rate:</b>	No data available
<b>Solubility in water:</b>	slightly soluble
<b>Refractive index:</b>	1.4356
<b>Viscosity, dynamic:</b>	17.30 mPa.s 68 °F (20 °C)
<b>Oil/water partition coefficient:</b>	No data available
<b>Self-Accelerating Decomposition Temperature (SADT):</b>	167 °F (75 °C) 45 pound container
<b>Thermal decomposition</b>	No data available
<b>Active oxygen content:</b>	8.7 - 9.0 %
<b>Flammability (solid, gas):</b>	Not relevant

#### 10. STABILITY AND REACTIVITY

---

**Stability:**

This material is chemically unstable and should only be handled under specified conditions.

**Hazardous reactions:**

Hazardous polymerization does not occur.

**Materials to avoid:**

- Strong acids
- Strong bases
- Strong oxidizing agents
- Reducing agents
- Accelerators
- Friedel - Crafts reaction catalyst
- transition metal salts
- metal ions
- Brass
- Copper
- Iron

For all Organic Peroxides, compatible materials of contact are stainless steel 304 or 316 (preferred), high-density polyethylene (HDPE), polytetrafluoroethylene or glass linings.

**Conditions / hazards to avoid:**

SADT - Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction. This reaction will generate flammable vapors which may

---

## Material Safety Data Sheet

### Polyester Hardener

---

autoignite. The length of time to generate a decomposition reaction, after the SADT has been reached or exceeded, is dependent upon how much the SADT has been exceeded and the length of time needed for the reaction exotherm (heat spike from increasing decomposition rate) to initiate a rapid decomposition reaction. Typically, SADT is inversely proportional to package size. Larger packages will have a lower SADT due to smaller ratio to heat transfer area to volume of product. See HANDLING AND STORAGE section of this SDS for specified conditions. See Hazardous Decomposition Products below.

#### **Hazardous decomposition products:**

Temperatures at or above SADT can result in the release of hazardous decomposition products which are flammable and may autoignite.

Thermal decomposition giving flammable and toxic products :

Carbon oxides

Hazardous organic compounds

### 11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

#### **Data for Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (6846-50-0)**

##### **Acute toxicity**

###### **Oral:**

No deaths occurred. (rat) LD0 > 2,000 mg/kg.

###### **Dermal:**

No deaths occurred. (rabbit) LD0 > 2,000 mg/kg.

###### **Inhalation:**

No deaths occurred. (rat) 6 h LC0 > 5.3 mg/l.

###### **Skin Irritation:**

Non-irritating. (rabbit) Irritation Index: 0/8. (4 h)

###### **Eye Irritation:**

Practically non-irritating. (rabbit)

###### **Sensitization:**

No data available.

###### **Skin Sensitization:**

Not a skin sensitizer. Repeated skin exposure. (guinea pig) No skin allergy was observed

##### **Repeated dose toxicity**

Repeated oral administration to rat / affected organ(s): kidney, liver / signs: clinical chemistry changes, changes in organ weights, hyaline droplet nephropathy / (not considered relevant in humans)

Subchronic dietary administration to dog / No adverse systemic effects reported.

##### **Carcinogenicity**

No data available.

##### **Genotoxicity**

---



## Material Safety Data Sheet

### Polyester Hardener

---

**Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

No data available.

**Developmental toxicity**

Reproductive/Developmental Effects Screening Assay. dietary (rat) / No birth defects were observed.

**Reproductive effects**

Reproductive/Developmental Effects Screening Assay. dietary (rat) / No toxicity to reproduction. At high dose : levels produced toxic effects in the mothers and offspring

**Human experience****Skin contact:**

No skin allergy was observed. (studied using human volunteers)

**Data for 2-Butanone, peroxide (1338-23-4)****Acute toxicity****Oral:**

Moderately toxic. (rat) LD50 = 1,017 mg/kg. (35 - 39 %) (In solution in Dimethyl phthalate)

Moderately toxic. (rat) LD50 = 356 - 397 mg/kg. active ingredient

**Dermal:**

Slightly toxic. (rabbit) LD50 = 4,000 mg/kg. (35 - 39 %) (In solution in Dimethyl phthalate)

Slightly toxic. (rabbit) LD50 = 1,400 - 1,560 mg/kg. active ingredient

**Inhalation:**

Practically nontoxic. (rat) 4.00 h LC50 = 17 mg/l. (35 - 39 %) (aerosol, In solution in Dimethyl phthalate)

Practically nontoxic. (rat) 4 h LC50 = 6.0 - 6.6 mg/l. (aerosol, active ingredient)

**Skin Irritation:**

Severely irritating. (rabbit) (4 h) (33 %) (occluded exposure, In solution in Dimethyl phthalate)

**Eye Irritation:**

Corrosive. (rabbit) (33 - 39 %) (In solution in Dimethyl phthalate)

**Sensitization:**

No data available.

**Skin Sensitization:**

Not a skin sensitizer. Guinea pig maximization test. No skin allergy was observed (40 %) (In solution in Dimethyl phthalate)

**Repeated dose toxicity**

Repeated oral administration to rat / affected organ(s): stomach, liver / signs: Irritation of the gastric mucosa, increased organ weight

Subchronic dermal administration to rat and mouse / affected organ(s): skin / signs: severe damage /

No adverse systemic effects reported.

**Carcinogenicity**

No data available.

---

## Material Safety Data Sheet

### Polyester Hardener

---

#### **Genotoxicity**

##### **Assessment in Vitro:**

Both positive and negative responses for genetic changes were observed in laboratory tests using: bacteria, animal cells

##### **Assessment in Vivo:**

No genetic changes were observed in laboratory tests using: mice

#### **Developmental toxicity**

Reproductive/Developmental Effects Screening Assay. oral (rat) / No birth defects were observed.

#### **Reproductive effects**

Reproductive/Developmental Effects Screening Assay. oral (rat) / No toxicity to reproduction.

#### **Human experience**

##### **Skin contact:**

No skin allergy was observed. (studied using human volunteers)

Skin allergy was observed. Isolated case reports after exposure to a mixture containing this substance.

#### **Human experience**

##### **Eye contact:**

Eyes: Pain, tearing, sensitivity to light, irritation. Mist and/or vapor are reported to cause irritation when proper industrial hygiene controls/procedures are not used. (based on reports of occupational exposure to workers) (severity of effects depends on extent of exposure)

Eyes: Pain, causes severe burns. (accidental exposure to concentrated solutions) (based on reports of occupational exposure to workers) (severity of effects depends on extent of exposure)

#### **Human experience**

##### **Ingestion:**

Esophagus: Severe irritation, burns. (accidental exposure to concentrated solutions)

#### **Data for 2,4-Pentanediol, 2-methyl- (107-41-5)**

#### **Acute toxicity**

##### **Oral:**

Slightly toxic. (rat, mouse, rabbit, guinea pig) LD50 = 2,800 - 4,700 mg/kg. signs: GI tract irritation, central nervous system depression

##### **Dermal:**

No deaths occurred. (rat) LD0 > 2,000 mg/kg.  
Practically nontoxic. (rabbit) LD50 = 12,275 mg/kg.

##### **Inhalation:**

No deaths occurred. (rat) 8 h LC0 >= 0.34 mg/l (70 ppm) (saturated vapor)

##### **Skin Irritation:**

Practically non-irritating. (rabbit) Irritation Index: 0.4/8. (4 h)

##### **Eye Irritation:**

Moderately to severely irritating. (rabbit)

##### **Sensitization:**

---

## Material Safety Data Sheet

### Polyester Hardener

---

No data available.

**Skin Sensitization:**

Not a skin sensitizer. Repeated skin exposure. (guinea pig) No skin allergy or irritation was observed.

**Repeated dose toxicity**

Repeated dietary administration to rat / affected organ(s): kidney, liver, stomach / signs: Irritation of the gastric mucosa / No significant impairment of function.

Repeated inhalation administration to rat / affected organ(s): upper respiratory tract / Local irritation (Aerosol)

**Carcinogenicity**

No data available.

**Genotoxicity**

**Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

No data available.

**Developmental toxicity**

Exposure during pregnancy. Oral (rat) / No birth defects were observed. (delays in development, at doses that produce effects in mothers)

**Reproductive effects**

Reproductive/Developmental Effects Screening Assay. Oral (rat) / No toxicity to reproduction. At high dose : Effects on offspring / (increased mortality in the offspring, decreased growth rate)

**Human experience**

**Inhalation:**

Discomfort. (severity of effects depends on extent of exposure) (studied using human volunteers)

**Human experience**

**Skin contact:**

No skin allergy was observed. (studied using human volunteers)

Local irritation, redness, swelling. (subjects with dermatitis or eczema)

Central nervous system depression. (severity of effects depends on extent of exposure)

**Human experience**

**Eye contact:**

Discomfort, slightly irritating. (liquid or aerosol) (studied using human volunteers) (severity of effects depends on extent of exposure)

**Data for 2-Butanone (78-93-3)**

**Acute toxicity**

**Oral:**

Slightly toxic. (rat) LD50 = 3,460 mg/kg.

**Dermal:**

Practically nontoxic. (rabbit) LD50 = 5,000 - 13,000 mg/kg.

## Material Safety Data Sheet

### Polyester Hardener

---

**Inhalation:**

Practically nontoxic. (rat) 4 h LC50 = 34.5 mg/l (11700 ppm) .

**Skin Irritation:**

Moderately irritating. (rabbit) (24 h)

**Eye Irritation:**

Moderately irritating. (rabbit) Draize Test 21/110.

**Sensitization:**

No data available.

**Skin Sensitization:**

Not a skin sensitizer. Buehler method. (guinea pig) No skin allergy was observed

**Repeated dose toxicity**

Subchronic inhalation administration to rat / affected organ(s): liver / signs: blood chemistry changes, changes in organ weights

Repeated inhalation administration to rat, mouse, cat, chicken / no nervous system injuries

**Carcinogenicity**

Chronic dermal application administration to mouse / signs: No increase in tumor incidence was reported.

**Genotoxicity****Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells  
Both positive and equivocal responses have been reported in tests using: yeast

**Assessment in Vivo:**

No genetic changes were observed in laboratory tests using: mice

**Developmental toxicity**

Exposure during pregnancy. inhalation (mouse) / No birth defects were observed. (skeletal variations, delays in development)

Exposure during pregnancy. inhalation (rat) / No birth defects were observed. (delays in development, at doses that produce effects in mothers)

**Reproductive effects**

Reproduction Test. drinking water (rat) / No toxicity to reproduction / (similar material)

**Other information**

Aspiration hazard

**Human experience****Inhalation:**

Upper respiratory tract: irritation. (vapor)

Central nervous system: drowsiness, dizziness. Exposure to other materials makes the association questionable. (based on reports of occupational exposure to workers)

Nervous system: altered reflexes, changes in motor activity. Exposure to other materials makes the association questionable. (based on reports of occupational exposure to workers)

**Human experience****Skin contact:**

Skin: No skin allergy was observed. (studied using human volunteers)

---

## Material Safety Data Sheet

### Polyester Hardener

---

Skin: dermatitis, cracking. Has a degreasing effect on the skin. (repeated or prolonged exposure)

#### **Human experience**

##### **Eye contact:**

Eyes: irritating. (vapor)

#### **Data for 1-Butanamine, N,N-dibutyl- (102-82-9)**

##### **Acute toxicity**

###### **Oral:**

Slightly to moderately toxic. (rat) LD50 = 420 - 780 mg/kg.

###### **Dermal:**

Highly toxic. (rabbit) LD50 = 195 mg/kg. (100 %)

No more than slightly toxic. (rat) LD50 > 2,000 mg/kg. (as aqueous solution)

###### **Inhalation:**

Highly toxic. (rat) 4 h LC50 = 0.5 mg/l. signs: lung effects, eye irritation

###### **Skin Irritation:**

Moderately to severely irritating. (rabbit) (1 h)

###### **Eye Irritation:**

Slightly irritating. (rabbit) Irritation Index: 2 / 110.

###### **Sensitization:**

No data available.

###### **Skin Sensitization:**

Not a skin sensitizer. Buehler method. (guinea pig) No skin allergy was observed

##### **Repeated dose toxicity**

Repeated inhalation administration to rat / signs: nasal irritation, incoordination, restlessness, tremors

##### **Carcinogenicity**

No data available.

##### **Genotoxicity**

###### **Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

###### **Assessment in Vivo:**

No genetic changes were observed in a laboratory test using: mice

##### **Developmental toxicity**

Exposure during pregnancy. oral (rat) / No birth defects were observed. (at doses that produce effects in mothers)

##### **Reproductive effects**

No data available.

#### **Data for Hydrogen peroxide dilute solutions (<10%) (7722-84-1)**

##### **Acute toxicity**

---

## Material Safety Data Sheet

### Polyester Hardener

---

**Oral:**

No deaths occurred. (Rat) LD0 >5,000 mg/kg . (10 %) (as aqueous solution)

**Dermal:**

LD50 - No data available.

**Inhalation:**

No deaths occurred. (Rat) 4 h LC0 > 0.17 mg/l. (50 %) (saturated vapor)

**Skin Irritation:**

Non-irritating. (Rabbit) (3 - 10 %) (aqueous solution)

**Eye Irritation:**

Non-irritating. (Rabbit) (3 %) (aqueous solution)

Moderately irritating. (Rabbit) (5 %) aqueous solution

Severely irritating. (Rabbit) (6 - 10 %) aqueous solution

**Sensitization:**

No data available.

**Skin Sensitization:**

No data available.

**Repeated dose toxicity**

Repeated drinking water administration to rat and mouse / affected organ(s): Gastro-intestinal tract / signs: irritation

Repeated inhalation administration to rat and mouse / affected organ(s): nose / signs: irritation

**Carcinogenicity**

Chronic drinking water administration to rat and mouse / affected organ(s): Gastro-intestinal tract / Increased incidence of tumors was reported.

**Genotoxicity****Assessment in Vitro:**

Genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

Genetic changes were observed in a laboratory test using: mice, rats

**Developmental toxicity**

No data available.

**Reproductive effects**

No data available.

**Human experience****Inhalation:**

Throat: irritation. (based on reports of occupational exposure to workers)

**Human experience****Skin contact:**

Skin: bleaching of hair. (based on reports of occupational exposure to workers)

**Human experience**

---

## Material Safety Data Sheet

### Polyester Hardener

---

**Eye contact:**

Eye: irritating. (based on reports of occupational exposure to workers)

**Human experience****Ingestion:**

Gastro-intestinal tract: bloating, ulceration, burns. (accidental exposure to concentrated solutions)

Lung: accumulation of fluid in the lungs, death. (severity of effects depends on extent of exposure)

## 12. ECOLOGICAL INFORMATION

---

**Chemical Fate and Pathway**

Data on this material and/or its components are summarized below.

**Data for Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (6846-50-0)****Biodegradation:**

Inherently biodegradable. (aerobic, 28 d) biodegradation 71 % / The 10 day time window criterion is not fulfilled.

**Theoretical Biological Oxygen Demand:**

Theoretical oxygen demand (ThOD) = 2,400 mg/g

**Bioaccumulation:**

BCF = 670 (without metabolism)

BCF = 14,611 (with metabolism)

BCF = 5.2 - 31 (Carp)

**Octanol Water Partition Coefficient:**

log Pow = 4.04 - 4.91 (calculated)

**Data for 2-Butanone, peroxide (1338-23-4)****Biodegradation:**

Readily biodegradable. (28 d) biodegradation 87 %

**Octanol Water Partition Coefficient:**

log Pow < 0.3

**Data for 2,4-Pentanediol, 2-methyl- (107-41-5)****Biodegradation:**

Readily biodegradable. (28 d) biodegradation 81 %

**Octanol Water Partition Coefficient:**

log Pow = -0.14

**Data for 2-Butanone (78-93-3)**

---

## Material Safety Data Sheet

### Polyester Hardener

---

**Biodegradation:**

Readily biodegradable. (28 d) biodegradation 98 %

**Octanol Water Partition Coefficient:**

log Pow = 0.3

**Photodegradation:**

Half-life direct photolysis: = 6.9 d  
(is rapidly degraded in air by OH radicals.)

**Data for 1-Butanamine, N,N-dibutyl- (102-82-9)****Biodegradation:**

Readily biodegradable (29 d) biodegradation 80.3 %

**Biological Oxygen Demand:**

15 d BOD >70%ThOD

**Theoretical Biological Oxygen Demand:**

Theoretical oxygen demand (ThOD) = 3,110 mg/g

**Octanol Water Partition Coefficient:**

log Pow = 3.338

**Data for Hydrogen peroxide (7722-84-1)****Biodegradation:**

Readily biodegradable. (0.02 d) biodegradation 99 %

**Octanol Water Partition Coefficient:**

log Pow = -1.57 (calculated)

**Ecotoxicology**

Data on this material and/or its components are summarized below.

**Data for Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (6846-50-0)****Aquatic toxicity data:**

No effect up to the limit of solubility. Lepomis macrochirus (Bluegill sunfish) 96 h NOEC > 6 mg/l

**Aquatic invertebrates:**

No effect up to the limit of solubility. Daphnia magna (Water flea) 48 h EC50 > 1.46 mg/l

**Algae:**

No effect up to the limit of solubility. Selenastrum capricornutum 72 h EC50 (growth rate) > 7.49 mg/l

**Chronic toxicity to aquatic invertebrates:**

Daphnia magna (Water flea) 21 d NOEC (reproduction) = 0.7 mg/l

**Data for 2-Butanone, peroxide (1338-23-4)****Aquatic toxicity data:**

Slightly toxic. Poecilia reticulata (guppy) 96 h LC50 = 44.2 mg/l (In solution in Dimethyl phthalate)

---



## Material Safety Data Sheet

### Polyester Hardener

---

**Aquatic invertebrates:**

Slightly toxic. *Daphnia* (water flea) 48 h EC50 = 39 mg/l (In solution in Dimethyl phthalate)

**Algae:**

Moderately toxic. *Pseudokirchneriella subcapitata* (green algae) 72 h ErC50 = 5.6 mg/l (In solution in Dimethyl phthalate)

**Microorganisms:**

Respiration inhibition / Activated sludge 30 min EC50 = 48 mg/l (In solution in Dimethyl phthalate)

**Data for 2,4-Pentandiol, 2-methyl- (107-41-5)****Aquatic toxicity data:**

Practically nontoxic. *Oncorhynchus mykiss* (rainbow trout) 96 h LC50 = 9,450 mg/l

Practically nontoxic. *Lepomis macrochirus* (Bluegill sunfish) 96 h LC50 = 12,800 mg/l

Practically nontoxic. *Pimephales promelas* (fathead minnow) 96 h LC50 = 8,690 - 10,700 mg/l

**Aquatic invertebrates:**

Practically nontoxic. *Daphnia magna* (Water flea) 48 h EC50 = 3,200 - 5,410 mg/l

**Algae:**

Practically nontoxic. *Selenastrum capricornutum* 72 h EC50 > 429 mg/l

**Microorganisms:**

Bacteria 10 d NOEC > 1,000 mg/l

**Data for 2-Butanone (78-93-3)****Aquatic toxicity data:**

Practically nontoxic. *Pimephales promelas* (fathead minnow) 96 h LC50 = 2,993 mg/l

**Aquatic invertebrates:**

Practically nontoxic. *Daphnia magna* (Water flea) 48 h EC50 = 308 mg/l

**Algae:**

Practically nontoxic. *Pseudokirchneriella subcapitata* (green algae) 72 h EC50 = 1,972 mg/l

**Microorganisms:**

*Pseudomonas putida* 16 h Toxicity threshold = 1,150 mg/l

**Data for 1-Butanamine, N,N-dibutyl- (102-82-9)****Aquatic toxicity data:**

Slightly toxic. *Oryzias latipes* (medaka) 96 h LC50 = 16.3 mg/l

**Aquatic invertebrates:**

Moderately toxic. *Daphnia magna* (Water flea) 48 h EC50 = 8 mg/l

**Algae:**

Moderately toxic. *Scenedesmus subspicatus* 72 h EbC50 = 8.2 mg/l (neutralized product)

Moderately toxic. *Scenedesmus subspicatus* 72 h EbC50 = 3.5 mg/l (product not neutralized)

**Microorganisms:**

*Nitrosomonas* sp 2 h NOEC = 100 mg/l

## Material Safety Data Sheet

### Polyester Hardener

#### Data for Hydrogen peroxide (7722-84-1)

**Aquatic toxicity data:**

Slightly toxic. Pimephales promelas (fathead minnow) 96 h LC50 = 16.4 mg/l

**Aquatic invertebrates:**

Moderately toxic. Daphnia pulex (Water flea) 48 h EC50 = 2.4 mg/l

**Algae:**

Moderately toxic. Skeletonema costatum (marine diatom) 72 h ErC50 = 1.38 mg/l

**Microorganisms:**

Activated sludge 0.5 h EC50 = 466 mg/l

Activated sludge 3 h EC50 > 1,000 mg/l

**Chronic toxicity to aquatic invertebrates:**

Reproduction Test / Daphnia magna (Water flea) 21 d NOEC = 0.63 mg/l

#### 13. DISPOSAL CONSIDERATIONS

**Waste disposal:**

Dilution followed by incineration is the preferred method. Dilution ratio of 10:1 in a clean, compatible, combustible solvent (i.e., Fuel Oil #2, mineral oil) will reduce reactivity hazard during incineration and transportation. Dispose of in accordance with federal, provincial and local regulations.

Consult a regulatory specialist to determine appropriate provincial or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, provincial and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

#### 14. TRANSPORT INFORMATION

**Canadian Transportation of Dangerous Good (TDG)**

UN Number : 3105  
Proper shipping name : Organic peroxide type D, liquid  
Technical name : (Methyl ethyl ketone peroxide(s), <=45%)  
Class : 5.2  
Packaging group : II  
Marine pollutant : no

**International Maritime Dangerous Goods Code (IMDG)**

UN Number : 3105  
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID  
Technical name : (METHYL ETHYL KETONE PEROXIDE, <=45%)  
Class : 5.2  
Marine pollutant : no

#### 15. REGULATORY INFORMATION

**Chemical Inventory Status**

## Material Safety Data Sheet

### Polyester Hardener

---

EU. EINECS	EINECS	Conforms to
United States TSCA Inventory	TSCA	The components of this product are all on the TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL
China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Conforms to
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	Conforms to
New Zealand. Inventory of Chemical Substances	NZIOC	Conforms to

#### **Canada - Federal Regulations**

#### **Workplace Hazardous Materials Information System (WHMIS)**

C: Oxidizing material  
D1B: Toxic material causing immediate and serious toxic effects  
D2B: Toxic material causing other toxic effects

#### **Ingredient Disclosure List (IDL)**

<u>Chemical name</u>	<u>CAS-No.</u>
2-Butanone, peroxide	1338-23-4
2,4-Pentanediol, 2-methyl-	107-41-5
2-Butanone	78-93-3
Hydrogen peroxide	7722-84-1
1-Butanamine, N,N-dibutyl-	102-82-9

#### **WHMIS Regulated Carcinogens (IARC, ACGIH Listed):**

IARC:

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

#### **ACGIH:**

<u>Chemical name</u>	<u>CAS-No.</u>	<u>Rating</u>
Hydrogen peroxide	7722-84-1	Group A3 (Confirmed animal carcinogen with unknown relevance to humans.)

---

# Material Safety Data Sheet

## Polyester Hardener

---

### National Pollution Release Inventory (NPRI)

Chemical name  
2-Butanone

CAS-No.  
78-93-3

### 16. OTHER INFORMATION

---

#### HMIS ratings:

Health: 3 (SERIOUS HAZARD)  
Fire: 2 (MODERATE HAZARD)  
Reactivity: 3 (SERIOUS HAZARD)

#### Latest Revision(s):

Reference number: PF-CL  
Date of Revision: Nov 20, 2018

Date Printed: Nov 20, 2018

PREPARED BY: Regulatory affairs department  
PHONE NUMBER OF PREPARER: 1-418-886-2454  
PREPARATION DATE: May 10, 2018

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

Information contained in this SDS is believed to be accurate but is furnished without warranty, express or implied, including warranties of merchantability or fitness for a particular purpose. The information relates only to the specific material designated herein. The user is responsible for determining whether the product is suitable for user's method of use or application.