

Material Safety Data Sheet

Material Name: CHP HARDENER

ID:

*** Section 1 - Chemical Product and Company Identification ***

Product Trade Name CHP HARDENER

Manufacturer Information

Corrosion Engineering

(601) 933-3540

300 Stevens Drive, Suite 310

(800) 424-9300

Lester, PA 19113

*** Section 2 - Composition / Information on Ingredients ***

| CAS # | Component | Percent | OSHA |
|----------|-------------------------|---------|------|
| 80-15-9 | Cumene Hydroperoxide | 88 | Y |
| 617-94-7 | α -Cumyl alcohol | 6 | Y |
| 98-82-8 | Cumene | 5 | Y |
| 98-86-2 | Acetophenone | 1 | Y |

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Communication Standard (29 CFR 1910.1200)

The components of this product are all on the TSCA inventory list.

*** Section 3 - Hazards Identification ***

Emergency Overview:

Clear to yellow liquid-sharp aromatic odor

DANGER!

ORGANIC PEROXIDE CAUSES EYE BURNS. MAY CAUSE BLINDNESS.

CAUSES SKIN BURNS.

HARMFUL IF SWALLOWED HARMFUL IF ABSORBED THROUGH SKIN.

MAY CAUSE RESPIRATORY TRACT IRRITATION.

MAY CAUSE ALLERGIC SKIN REACTION.

PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION.

Potential Health Effects:

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on its composition, it is anticipated to be moderately toxic if swallowed or absorbed through skin and corrosive to eyes and skin. Repeated contact may cause an allergic skin reaction. Prolonged or repeated contact removes oils from the skin and may dry skin and cause irritation, redness and rash. High vapor concentrations may be irritating to the eyes and respiratory tract, and may result in central nervous system (CNS) effects such as headache, dizziness, nausea, drowsiness and, in severe exposures, loss of consciousness and death. If swallowed, this material may cause severe irritation and injury to the mouth, throat and digestive tract, and CNS effects as noted above. Mild to severe lung injury may occur if this material is drawn into the lungs (aspirated) during swallowing, or during vomiting after swallowing. Symptoms of injury include increased breathing and heart rate, coughing, related signs of respiratory distress and respiratory failure.

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*** Section 4 - First Aid Measures ***

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention immediately.

IF ON SKIN, immediately wash with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated shoes.

IF SWALLOWED, induce vomiting as described by medical personnel. Call a poison control center. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

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

*** Section 5 - Fire Fighting Measures ***

| | | |
|--|---|-------------------------------------|
| Flash Point: 133 deg F (57 deg C) | Method Used: TCC | Flammability Classification: |
| Upper Flammable Limit (UFL): 6.1 | Lower Flammable Limit (LFL): 1.1 | |

Fire & Explosion Hazards:

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.

Extinguishing Media:

Use water spray, foam or dry chemical.

Fire-Fighting Instructions:

Fight fire with large amounts of water from a safe distance. Use water spray to cool containers exposed to fire. 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). Fire fighting equipment should be thoroughly decontaminated after use. After a fire, wait until the material has cooled to room temperature before initiating clean up activities.

*** Section 6 - Accidental Release Measures ***

Spill or Leak

Use inert, non-combustible absorbent material. Sweep or scoop up using non-sparking tools. Wet down and dispose of immediately. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

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*** Section 7 - Handling and Storage ***

Handling Procedures:

Contact with incompatible materials or exposure to temperatures exceeding SADT (See Section 9) may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite. Keep away from heat and flame. Avoid contamination. Use explosion proof equipment. Do not reuse container as it may retain hazardous product residue. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Do not taste or swallow.

Storage Procedures:

Store below 38 C/100 F to maintain stability and active oxygen content. Detached storage is preferred. Store out of direct sunlight in a cool well-ventilated place. Store away from combustibles and incompatible materials. Refer also to National Fire Protection Agency (NFPA) Code 432, Code for the Storage of Organic Peroxide Formulations.

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits

Cumene Hydroperoxide (80-15-9)

WEEL: 6 mg/m³; 1 ppm (TWA)
WEEL-AIHA SKIN DESIGNATOR: Y

Cumene (98-82-8)

ACGIH: 246 mg/m³; 50 ppm (TLV-TWA)
OSHA SKIN DESIGNATOR: Y
OSHA: 245 mg/m³; 50 ppm (PEL-TWA)

Acetophenone (98-86-2)

ACGIH: 85 mg/m³; 20 ppm (TLV-TWA)
WEEL: 49 mg/m³; 10 ppm (TWA)

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

Engineering Controls:

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

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PERSONAL PROTECTIVE EQUIPMENT

As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

Eyes/Face Protective Equipment:

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

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 promptly and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash skin thoroughly after handling.

Respiratory Protection:

Avoid breathing vapor or mist. When airborne exposure limits are exceeded (see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions 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. Respiratory protection programs must comply with 29 CFR § 1910.134.

* * * Section 9 - Physical & Chemical Properties * * *

| | | | |
|-------------------------------|----------------------|--------------------------|------------------------|
| Physical State: | Liquid | Appearance: | Clear to yellow liquid |
| Odor: | Sharp, aromatic odor | Vapor Pressure: | 1 mg/Hg @ 20 deg C |
| Vapor Density: | 5.4 (air =1) | Boiling Point: | Decomposes |
| Melting Point: | NE | Specific Gravity: | 1.03 @ 25/25 Deg C |
| pH: | N/A | Viscosity: | NE |
| VOC: | 100% | Solubility Water: | Slightly soluble |
| SADT (5-gal container) | 180 deg F (82 deg C) | Molecular Weight | 152 (CHP) |

This material is chemically unstable and should only be handled under specified conditions. See HANDLING AND STORAGE section of this MSDS for specified conditions.

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 autoignite. The length of time to generated 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.

Other Physical Data: Active Oxygen Content = 9.25% min.

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*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability:

This material is chemically unstable and should only be handled under specified conditions. See HANDLING AND STORAGE section of this MSDS for specified conditions.

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 autoignite. The length of time to generated 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.

Incompatibility:

Contact w/ copper, iron, rust, aluminum, zinc, vermiculite, strong acids & oxidizers, reducing agents, transition metal salt/ions, & reaction accelerators may result in a rapid and violent reaction.

Decomposition Products:

Phenol, acetone, and flammable vapors which may autoignite if a violent decomposition occurs.

Hazardous Polymerization:

Does not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity:

A: General Product Information

No information available for the product.

B: Component Analysis –

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

Cumene Hydroperoxide

Single exposure (acute) studies indicate that this material is moderately toxic to rats if swallowed (LD50 382 mg/kg, 73% active ingredient) or absorbed through skin (LD50 515-1030 mg/kg), slightly toxic to rats if inhaled (4-hr LC50 220 ppm, 73% active ingredient), and corrosive to eyes and skin (rabbit 4-hr exposure, 83% active ingredient). In a repeat oral dosing study (7 weeks), death occurred in 4 out of 5 rats given 76 mg/kg. No effects were observed in rats exposed to 31 mg/m³ for 6 hrs/day, 5 days/week for up to three months. At a higher concentration (124 mg/m³), experiments were terminated after five days due to severe eye, respiratory tract

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and stomach irritation, and mortality. In earlier, short term inhalation studies in rats, central nervous system (CNS) effects, difficulty breathing, weight loss and lung damage were reported. Repeated skin application caused hair loss and mild irritation, but did not cause tumors. No genetic changes were observed in tests using animals and yeast. Positive responses were reported in a variety of tests using bacteria and fruit flies. Cumene Single exposure (acute) studies indicate that this material is slightly toxic to rats if swallowed (LD50 2,700-2,910 mg/kg), slightly toxic to practically non-toxic to rabbits if absorbed through skin (LD50 3,150-10,600 mg/kg), practically non-toxic to rats if inhaled (4-hr LC50 30 mg/l; mouse 30-min RD50 2,490 ppm), practically nonirritating to rabbit eyes (0.9/110), and moderately irritating to rabbit skin (24-hr exposure, 3.7/8.0). Oral administration to rats at 154 mg/kg/day for 6.5 months produced no effects; dosing at 462 or 769 mg/kg/day resulted in a kidney weight increase. Inhalation exposure of rats and rabbits at up to 500 ppm (2.5 mg/l) for approximately 5 months resulted in increased blood supply and congestion in the lungs, liver, and kidney.

Exposure of rats, guinea pigs, monkeys and dogs to vapor at either 224 ppm, 8 hours/day, 5 days/week for 6 months or 30 ppm continuously for 90 days did not result in any adverse effects. Inhalation exposure of rats (6 hours/day, 5 days/week for 14 weeks) at a concentration of 100 ppm or less showed no adverse effects. At 500 and 1200 ppm, animals showed increased liver, kidney and adrenal weights and changes in the kidneys. Neuropathological and functional observations showed no evidence for nervous system effects. No increase in birth defects or toxic effects on the fetus was seen in rats or rabbits exposed by inhalation during pregnancy at up to 1200 or 2300 ppm, respectively. No genetic changes were observed in tests using bacteria or animal cells. It is readily absorbed through the skin and gastrointestinal tract and rapidly excreted in the urine as a glucuronide.

α-Cumyl alcohol

Single exposure (acute) studies indicate that this material is slightly toxic to rats if swallowed (LD50 1,300-3,000 mg/kg) or rabbits if absorbed through skin (LD50 4,300 mg/kg), and moderately to severely irritating to rabbit skin (24-hour exposure). Repeated exposure of humans in a controlled skin contact study was reported to produce skin allergy in some individuals. Application to the eyes of rabbits and guinea pigs (0.1 and 0.05 ml/day, respectively) for 15 days produced irritation. No toxic effects were reported in rats following repeated oral administration (450 mg/kg/day) for one month.

Acetophenone

Single exposure (acute) studies indicate that this material is slightly toxic to rats if swallowed (LD50 815-3,200 mg/kg) or to mice if inhaled (4-hr LC50 1.2 mg/l), practically non-toxic to rabbits if absorbed through skin (LD50 15,900 mg/kg), severely irritating to rabbit eyes, and slightly irritating to rabbit skin. No skin allergy was observed in humans following exposure to 2% of this material in petrolatum in controlled skin contact studies. Acute intoxication and narcosis from this material can be rapidly induced in experimental animals by inhalation exposure with death occurring after several hours of exposure to concentrations above 20,000 mg/m³. Repeated inhalation exposure (10-weeks) in rats resulted in muscle changes, congestion of heart vessels and liver effects. Longer-term (up to 230 days) inhalation studies in rats at 3 ppm resulted in degeneration of olfactory bulb cells. No treatment-related effects occurred in rats following dietary administration of up to 10,000 ppm for 17-weeks. No birth defects or any effects on the offspring were noted in rats following skin application of this material during pregnancy at up to 480 mg/kg/day. This material has generally produced no genetic changes in standard tests using animal or bacterial cells. It is rapidly eliminated in the excreta of rabbits and dogs.

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| *** Section 12 - Ecological Information *** |
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Ecotoxicity:

A: General Product Information

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No information available for the product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Cumene Hydroperoxide

This material is moderately toxic to Golden orfe (LC50 8 mg/l), Leucisus idus Melanotus (LC50 8mg/l), and Daphnia magna (IC50 7 mg/l). Toxicity thresholds for blue-green and green algae were 1.2 and 7.4 mg/l, respectively.

Cumene

This material is slightly to moderately toxic to fathead minnow (LC50 6.3-30 mg/l), rainbow trout (LC50 4.8 mg/l) and golden orfe (LC50 43-207 mg/l). It is moderately to highly toxic to Daphnia magna (LC50 0.6-4.0 mg/l) and protozoan (LC50 0.012-3.02 mg/l), and practically non-toxic to brine shrimp (LC50 110 mg/l).

α -Cumyl alcohol

No toxic effects were observed in sea lamprey larvae, rainbow trout or bluegill sunfish exposed to 5.0, 1.0, and 0.1 ppm, respectively, for 24-hours.

Environmental Fate:

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

***** Section 13 - Disposal Considerations *****

US EPA Waste Numbers & Descriptions:

A: General Product Information

Recover, reclaim or recycle when practical.

Disposal via incineration is recommended. Appropriate pretreatment and disposal in an authorized landfill is acceptable. In all cases, dispose of material in accordance with all applicable federal, state, and local laws and regulations. Consult appropriate regulatory officials or your attorney for information on such disposal.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

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*** Section 14 - Transportation Information ***

US DOT Information

DOT Name: Organic Peroxide, Type F, Liquid
DOT Technical Name: (Cumyl Hydroperoxide, <90%)
DOT Hazard Class: 5.2
UN Number: UN3109
DOT Packing Group: PGII
RQ Cumene Hydroperoxide RQ = 10 LBS.
RQ Name = alpha, alpha dimethylbenzyl hydroperoxide

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

B: Component Analysis

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 986 and 40 CFR Part 372. See Section 2

Acetophenone
Cumene
Cumene hydroperoxide

CERCLA Reportable Quantities (40 CFR 302.4):

| | |
|----------------------|----------|
| α-Cumyl alcohol | NE |
| Cumene hydroperoxide | 10 lbs |
| Cumene | 5000 lbs |
| Acetophenone | 5000 lbs |

SARA 311/312: Acute: Y Chronic: Y Fire: Y Pressure: N Reactive: Y

State Regulations

A: General Product Information

No additional information available.

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B: Component Analysis – State

The following components appear on one or more of the following state hazardous substances lists:

Massachusetts Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

Acetophenone
Cumene
Cumene hydroperoxide

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

Acetophenone
Cumene
Cumene hydroperoxide

Pennsylvania Environmental Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.

Acetophenone
Cumene
Cumene hydroperoxide

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

Acetophenone
Cumene
Cumene hydroperoxide

Other Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis – Inventory Component Analysis - Inventory

| CAS # | Component | TSCA | DSL | EINECS |
|----------|-------------------------|------|-----|--------|
| 80-15-9 | Cumene Hydroperoxide | Yes | Yes | Yes |
| 100-42-5 | α -Cumyl alcohol | Yes | Yes | Yes |
| 98-82-8 | Cumene | Yes | Yes | Yes |
| 98-86-2 | Acetophenone | Yes | Yes | Yes |

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

| CAS # | Component | Disclosure / Classifications |
|---------|----------------------|------------------------------|
| 80-15-9 | Cumene Hydroperoxide | 1% / B3, C, D1A, E |

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| | | |
|----------|-------------------------|-----------------|
| 100-42-5 | α -Cumyl alcohol | 0.1 % / B2, D2A |
| 98-82-8 | Cumene | 1% / B2 |
| 98-86-2 | Acetophenone | 1% / B3, D2B |

*** Section 16 - Other Information ***

Revision Information

Revision Date: 06/16/10 (Rev. 5.0000)

Supersedes: 06/15/07 (Rev. 4.0000)

Revision Summary: Revise Manufacturing Information (Sec. 1), review/revise WHMIS information (Sec. 15).

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which ~~the~~ ^{the} ~~user~~ ^{user} bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.