

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

## Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** CL-1000  
**Product Name:** CL-1000  
**X Code:** X(22,45,53)1269
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
- 1.3 Details of the Supplier of the Safety Data Sheet:**  
**Company Name:** Hitachi America, Ltd.  
50 Prospect Avenue  
Tarrytown, NY 10591  
**Information:** Garan Myers (704)972-9887
- 1.4 Emergency telephone number:**  
**Emergency Contact:** Chemtrec (800)424-9300

## Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**  
**2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
Flammable Liquids, Category 2  
Serious Eye Damage/Eye Irritation, Category 2A  
Target Organ Systemic Toxicity (single exposure), Category 3  
Skin Corrosion/Irritation, Category 2
- 2.2 Label Elements:**  
**2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** Danger

**GHS Hazard Phrases:**

H225 - Highly flammable liquid and vapor.  
H319 - Causes serious eye irritation.  
H335 - May cause respiratory irritation.  
H315 - Causes skin irritation.  
H360 - May damage fertility or the unborn child .

**GHS Precaution Phrases:**

P233 - Keep container tightly closed.  
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P240 - Ground/bond container and receiving equipment.  
P241 - Use explosion-proof electrical/ventilating/lighting/.../ equipment.  
P243 - Take precautionary measures against static discharge.  
P242 - Use only non-sparking tools.  
P264 - Wash hands thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.  
P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P281 - Use personal protective equipment as required.

**GHS Response Phrases:**

P370+378 - In case of fire, use ... to extinguish.

P303+361+353 - IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+313 - If eye irritation persists, get medical advice/attention.

P309+311 - Call a POISON CENTER or doctor/physician if exposed or you feel unwell.

P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P302+352 - IF ON SKIN: Wash with plenty of soap and water.

P321 - Specific treatment see ... on this label.

P332+313 - If skin irritation occurs, get medical advice/attention.

P362 - Take off contaminated clothing.

P308+313 - IF exposed or concerned: Get medical attention/advice.

**GHS Storage and Disposal Phrases:**

P403+235 - Store in cool/well-ventilated place.

P501 - Dispose of contents/container to ....

P405 - Store locked up.

P403+233 - Store container tightly closed in well-ventilated place - if product is as volatile as to generate hazardous atmosphere.

- 2.3 Adverse Human Health Effects and Symptoms:** Chronic: Prolonged or repeated skin contact may cause dermatitis. Chronic inhalation may cause effects similar to those of acute inhalation. Matsushita et al. exposed human volunteers 6 hours/day for 6 days at 500 ppm acetone and found hematologic changes including significantly increased leukocyte and eosinophil counts and decreased neutrophil phagocytic activity. Adverse reproductive effects have been reported in animals. Testicular effects in rats were noted after repeated, high-dose oral and inhalation exposures. (BASF) Human occupational exposure has been associated with chronic eye irritation, headaches, and irritant contact dermatitis. Airborne concentrations of 49 to 83 ppm are intolerable. (REPROTEXT) Prolonged or repeated skin contact may cause defatting and dermatitis.

May cause reproductive and fetal effects. Laboratory experiments have shown mutagenic effects. Animal studies have reported the development of tumors. Prolonged exposure may cause liver, kidney, and heart damage.

- 2.3.1 Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause motor incoordination and speech abnormalities. May cause headache. Material has a very low vapor pressure at room temperature, so inhalation exposures are not expected unless material is heated or misted. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness.

- 2.3.2 Skin Contact:** May be absorbed through the skin. Repeated or prolonged exposure may cause drying and cracking of the skin. Causes skin irritation. May be harmful if absorbed through the skin. Not expected to cause an allergic skin reaction. Because of the high permeability rate of N-methylpyrrolidone in human skin, prolonged exposures should be avoided. Causes moderate skin irritation. May cause cyanosis of the extremities. May cause irritation with pain and stinging, especially if the skin is abraded. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. Dermal absorption has been considered toxicologically insignificant. The cases of deep coma associated with skin contact are thought to be a consequence of gross isopropanol vapor inhalation in rooms with inadequate ventilation, rather than being attributable to percutaneous absorption of isopropanol per se.

- 2.3.3 Eye Contact:** Produces irritation, characterized by a burning sensation, redness, tearing, inflammation,

and possible corneal injury. Vapors may cause eye irritation. Causes eye irritation. May cause temporary corneal clouding. Causes severe eye irritation. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage. May cause transient corneal injury.

**2.3.4 Ingestion:**

May cause irritation of the digestive tract. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. The probable oral lethal dose in humans is 240 ml (2696 mg/kg), but ingestion of only 20 ml (224 mg/kg) has, but in gestion of only 20 ml (224 mg/kg) has caused poisoning.

**Section 3. Composition/Information on Ingredients**

CAS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
67-64-1	Acetone	60.0 -100.0 %	200-662-2 606-001-00-8	Flam. Liq. 2: H225 Eye Damage 2A: H319 TOST (SE) 3: H335 H336
872-50-4	N-Methyl-2-pyrrolidone	1.0 -5.0 %	212-828-1 606-021-00-7	Skin Corr. 2: H315 Eye Damage 2A: H319 TOST (SE) 3: H335 H336 Toxic Repro. 1B: H360
64-17-5	Ethyl alcohol	0.5 -4.0 %	200-578-6 603-002-00-5	Flam. Liq. 2: H225
67-63-0	Isopropyl alcohol	0.05 -1.0 %	200-661-7 603-117-00-0	Flam. Liq. 2: H225 Eye Damage 2A: H319 TOST (SE) 3: H335 H336

**Section 4. First Aid Measures**

**4.1 Description of First Aid Measures:**

- In Case of Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Remove from exposure and move to fresh air immediately. Do NOT use mouth-to-mouth resuscitation.
- In Case of Skin Contact:** In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
- In Case of Eye Contact:** In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid. Gently lift eyelids and flush continuously with water.
- In Case of Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Get medical aid. If victim is conscious and alert, give 2-4 cupfuls of milk or water.
- Note for the Doctor:** Treat symptomatically and supportively. Persons with skin or eye disorders or liver, kidney, chronic respiratory diseases, or central and peripheral nervous sytem diseases may be at increased risk from exposure to this substance.  
Antidote: Replace fluid and electrolytes. Urine acetone test may be helpful in diagnosis. Hemodialysis should be considered in severe intoxication.

## Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use dry chemical, carbon dioxide, or appropriate foam. Water may be ineffective because it will not cool material below its flash point. Use water spray, dry chemical, carbon dioxide, or appropriate foam. For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. Do NOT use straight streams of water. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.
- 5.2 Flammable Properties and Hazards:**  
**Flash Pt:** > -20.00 C Method Used: Estimate  
**Explosive Limits:** LEL: UEL:  
**Autoignition Pt:** > 346.00 C
- 5.3 Fire Fighting Instructions:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Combustible liquid and vapor. Replace fluid and electrolytes. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Flammable liquid and vapor. May form explosive peroxides.

## Section 6. Accidental Release Measures

- 6.3 Methods and Material For Containment and Cleaning Up:** Use proper personal protective equipment as indicated in Section 8.  
**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Wear appropriate protective clothing to minimize contact with skin. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces. Use only non-sparking tools and equipment. Use a spark-proof tool. Use water spray to dilute spill to a non-flammable mixture. Clean up spills immediately, observing precautions in the Protective Equipment section.

## Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor. Use with adequate ventilation. Keep away from heat and flame. Avoid breathing dust, mist, or vapor. Use only in a well-ventilated area. Use spark-proof tools and explosion proof equipment. Avoid ingestion and inhalation. Take precautionary measures against static discharges. Do not allow to evaporate to near dryness.
- 7.2 Precautions To Be Taken in Storing:** Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Store in

a cool, dry place. Keep away from heat, sparks and flame. Keep from contact with oxidizing materials. Do not store near perchlorates, peroxides, chromic acid or nitric acid. Do not store in direct sunlight. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation. Store protected from moisture. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.

## Section 8. Exposure Controls/Personal Protection

### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
67-64-1	Acetone	TWA: 1210 mg/m3 (500 ppm) STEL: 3620 mg/m3 (1500 ppm)	TWA: 1210 mg/m3 (500 ppm) STEL: 2420 mg/m3 (1000 ppm)	TWA: 1210 mg/m3
872-50-4	N-Methyl-2-pyrrolidone	TWA: 103 mg/m3 (25 ppm) STEL: 309 mg/m3 (75 ppm)		
64-17-5	Ethyl alcohol	TWA: 1920 mg/m3 (1000 ppm) STEL: ()	TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm)	
67-63-0	Isopropyl alcohol	TWA: 999 mg/m3 (400 ppm) STEL: 1250 mg/m3 (500 ppm)	STEL: 980 mg/m3 (400 ppm)	
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
67-64-1	Acetone	PEL: 1000 ppm	TLV: 500 ppm STEL: 750 ppm	
872-50-4	N-Methyl-2-pyrrolidone			
64-17-5	Ethyl alcohol	PEL: 1000 ppm	TLV: 1000 ppm	
67-63-0	Isopropyl alcohol	PEL: 400 ppm	TLV: 200 ppm STEL: 400 ppm	

### 8.2 Exposure Controls:

**8.2.1 Engineering Controls (Ventilation etc.):** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design. Use adequate ventilation to keep airborne concentrations low. Use explosion-proof ventilation equipment.

#### 8.2.2 Personal protection equipment:

- Eye Protection:** Wear chemical splash goggles. Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Protective Gloves:** Wear butyl rubber gloves, apron, and/or clothing. Wear appropriate gloves to prevent skin exposure. Wear appropriate protective gloves to prevent skin exposure.
- Other Protective Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respiratory Equipment (Specify Type):** A NIOSH/MSHA approved or European Standard EN 149 air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9. Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

**Physical States:**  Gas  Liquid  Solid

**Appearance and Odor:** Clear (Upon aging, clear or colorless fluids may develop a slight yellow tint which will not affect the product performance). solvent odor.

**Melting Point:** -114.10 C - -24.00 C

**Boiling Point:** 56.50 C - 202.00 C

**Flash Pt:** > -20.00 C Method Used: Estimate

**Evaporation Rate:** 7.7 (BuAC=1)

**Explosive Limits:** LEL: UEL:

**Vapor Pressure (vs. Air or mm Hg):** 185 MM\_HG at 20.0 C

**Vapor Density (vs. Air = 1):** > Air

**Specific Gravity (Water = 1):** 0..789

**Density:** 6.59 LB/GA

**Solubility in Water:** Miscible

**Autoignition Pt:** > 346.00 C

### 9.2 Other Information

**Percent Volatile:** > 99.0 % by volume.

## Section 10. Stability and Reactivity

### 10.1 Reactivity:

**10.2 Stability:** Unstable  Stable

### 10.3 Conditions To Avoid - Hazardous Reactions:

**Possibility of Hazardous Reactions:** Will occur  Will not occur

**10.4 Conditions To Avoid - Instability:** High temperatures, ignition sources, confined spaces, Light, Excess heat, Incompatible materials.

**10.5 Incompatibility - Materials To Avoid:** Strong oxidizing agents, Strong reducing agents, Strong bases, Nitric acid, hexachloromelamine, sulfur dichloride, potassium tert-butoxide, Strong acids, acids, Alkali metals, Ammonia, hydrazine, Peroxides, Sodium, Acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, Perchloric acid, silver nitrate, mercuric nitrate, magnesium perchlorate, Acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, Amines, ethylene oxide, isocyanates, acetaldehyde, chlorine, phosgene, Attacks some forms of plastics, rubbers, and coatings. aluminum at high temperatures.

**10.6 Hazardous Decomposition Or Byproducts:** Carbon monoxide, Nitrogen oxides, irritating and toxic fumes and gases.

## Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** Epidemiology: No data available.  
Reproductive Effects: See actual entry in RTECS for complete information.  
Mutagenicity: Neurotoxicity: Other Studies:

**Carcinogenicity/Other Information:** CAS# 67-64-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 872-50-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 64-17-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 67-63-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

## Section 12. Ecological Information

**12.1 Toxicity:** Environmental: Volatilizes, leeches, and biodegrades when released to soil.  
TERRESTRIAL FATE: If released on soil, acetone will both volatilize and leach into the ground. Acetone readily biodegrades and there is evidence suggesting that it biodegrades fairly rapidly in soils. AQUATIC FATE: If released into water, acetone will probably biodegrade. It is readily biodegradable in screening tests, although data from natural water are lacking. It will also be lost due to volatilization (estimated half-life 20 hr from a model river). Adsorption to sediment should not be significant.  
Physical: ATMOSPHERIC FATE: In the atmosphere, acetone will be lost by photolysis and reaction with photochemically produced hydroxyl radicals. Half-life estimates from these combined processes are 79 and 13 days in January and June, respectively, for an overall annual average of 22 days. Therefore considerable dispersion should occur. Being miscible in water, wash out by rain should be an important removal process. This process has been confirmed around Lake Shinsei-ko in Japan. There acetone was found in the air and rain as well as the lake.  
Other: No information available. No information available.  
Physical: No information available.  
Other: Biodegradable. When released to the atmosphere it will photodegrade in hours (polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant.  
Ecotoxicity: Fish: Fathead Minnow: 1000 ppm; 96h; LC50Daphnia: 1000 ppm; 96h; LC50Fish: Gold orfe: 8970-9280 ppm; 48h; LC50 IPA has a high biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism, a low potential to affect the germination of some plants, a high potential to biodegrade (low persistence) with unacclimated microorganisms from activated sludge.  
Physical: THOD: 2.40 g oxygen/gCOD: 2.23 g oxygen/gBOD-5: 1.19-1.72 g oxygen/g.

## Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.  
RCRA P-Series: None listed.  
RCRA U-Series:  
CAS# 67-64-1: waste number U002 (Ignitable waste).: waste number U154. RCRA U-Series: None listed.

## Section 14. Transport Information

**GHS Classification:** Flammable Liquids, Category 2 - Danger! Highly flammable liquid and vapor  
Serious Eye Damage/Eye Irritation, Category 2A - Warning! Causes serious eye irritation  
Target Organ Systemic Toxicity (single exposure), Category 3 - Warning! May cause respiratory irritation, or may cause drowsiness and dizziness  
Skin Corrosion/Irritation, Category 2 - Warning! Causes skin irritation

### 14.1 LAND TRANSPORT (US DOT):

**DOT Proper Shipping Name:** Printing ink related material

**DOT Hazard Class:** 3 FLAMMABLE LIQUID  
**UN/NA Number:** UN1210 **Packing Group:** II

### 14.1 LAND TRANSPORT (Canadian TDG):

**TDG Shipping Name:** Printing ink related material

**UN Number:** 1210 **Packing Group:** II  
**Hazard Class:** 3 - FLAMMABLE LIQUID **TDG Classification:**

### 14.1 LAND TRANSPORT (European ADR/RID):

**ADR/RID Shipping Name:**

**UN Number:** 1210 **Packing Group:** II  
**Hazard Class:** 3 - FLAMMABLE LIQUID

### 14.3 AIR TRANSPORT (ICAO/IATA):

**ICAO/IATA Shipping Name:** Printing ink related material

## Section 15. Regulatory Information

### Canadian WHMIS Classification:

CLASS B, DIVISION 2: Flammable Liquids  
CLASS D, DIVISION 2, SUBDIVISION A: Very Toxic Materials (carcinogens, reproductive toxicity, etc.)

## Section 16. Other Information

**Revision Date:** 11/12/2013

### Additional Information About This Product:

#### Company Policy or

#### Disclaimer:

The information and recommendations contained herein are, to the best of Hitachi's knowledge and belief, accurate and reliable as of the date issued. Because many factors may affect processing or application/use, HITACHI recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by

law, re-publication or retransmission of this document, in whole or in part, is not permitted. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the descriptions, designs, data and information furnished by Hitachi hereunder are given gratis and Hitachi assumes no obligation or liability for the description, designs, data and information given or results obtained. All such being given and accepted at your risk.