



# Perchloric acid 70%

## Section 1: Chemical Product and Company Identification

**Product Name:** Perchloric acid 70%

**Catalog Codes:** 208

**Synonym:** Hyperchloric acid

**Chemical Name:** Perchloric acid 70%

**Chemical Formula:** HClO<sub>4</sub>

### Contact Information:

Expresolv Ltd.

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CIN No.: U51909GJ2016PTC092972

## Section 2: Composition and Information on Ingredients

### Composition:

Name	CAS No.	% by Weight
Perchloric acid 70%	7601-90-3	70%

**Toxicological Data on Ingredients:** Perchloric acid: ORAL (LD50): Acute: 12600mg/kg (Rat). 4090 mg/kg (Mouse). DERMAL (LD50): Acute: 10000mg/kg (Rabbit). MIST (LC50): Acute: > 570 mg/m<sup>3</sup> a hours (Rat)

## Section 3: Hazards Identification

**Potential Acute Health Effects:** Very hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant, corrosive), of ingestion, Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

### Potential Chronic Health Effects:

Hazardous in case of skin contact (sensitizer). Non-corrosive for skin. Non-irritant for skin. Non-permeator by skin. No irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. No sensitizer for lungs. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mistp. 2 may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

## Section 4: First Aid Measures

### Eye Contact:

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact:** Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:**

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Serious Ingestion:** Not available.

**Section 5: Fire and Explosion Data**

Flammability of the Product: Non flammable

Auto-Ignition Temperature: NA

Flash Points: NA

Flammable Limits: LOWER: NA

Products of Combustion: NA

Fire Hazards in Presence of Various Substances: Combustible materials, organic materials, shock.

Explosion Hazards in presence of various substances:

Explosive in presence of open flames and sparks, of heat, of combustible materials, of organic materials, of acids, of alkalis. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on fire Hazards: Not available.

Special Remarks on Explosion Hazards:

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.)

**Section 6: Accidental Release Measures****Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:**

Corrosive liquid. Oxidizing material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

## Section 7: Handling and Storage

### Precautions:

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Corrosives area.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

### Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in case of a Large Spill:

Splash goggles full suit Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** TWA: 10 (mg/m<sup>3</sup>) from ACGIH (TLV) (United States) (1999) Inhalation Total. TWA: 10 STEL:20 (mg/m<sup>3</sup>) (Canada) TWA:10 STEL:20 (mg/m<sup>3</sup>) (Canada) TWA: 5 (mg/m<sup>3</sup>) from OSHA (PEL) (United States) Inhalation Respirable. Consult local authorities for acceptable exposure limits

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid

**Odour:** Strong

**Taste:** NA

**Molecular Weight:** 100.46 g/mole

**Colour:** Colorless

**PH:** 0.1@20°C

**Boiling Point:** 203 °C /  
397.4°F

**Melting Point:** -18 °C / -0.4 °F

**Critical Temperature:** NA

**Specific Gravity:** 1.66

**Vapor Pressure** 6.8 mmHg @  
25 °C

**Vapor Density:** 3.46

**Volatility:** Not available

**Water/Oil DistCoeff:** Soluble

**Ionicity (in water):** Not available

**Dispersion Properties:** See solubility in water, acetone

**Solubility:**

Miscible in cold water, hot water and alcohol. Partially soluble in acetone. Very slightly soluble in diethyl ether (ethyl ether). Limited solubility in ethyl acetate. Insoluble in carbon tetrachloride, benzene, chloroform, petroleum ethers, and oils.

**Section 10: Stability and Reactivity Data**

**Stability:** The product is stable

**Instability Temperature:** Not Available

**Conditions of Instability:** Avoid contact with incompatible materials, excess heat and ignition, sources, moisture.

**Incompatibility with various substances:** Highly reactive with oxidizing agents

**Corrosivity:** non-corrosive in presence of glass

**Special Remarks on Reactivity:**

Hygroscopic. Perchloric acid is incompatible with strong oxide's such as chromium trioxide, potassium chlorate, or potassium permanganate. Perchloric acid may react violently with acetic anhydride, aniline and nitrobenzene, chromic oxide, lead oxide and fluorine, phosphorous trioxide, ethylene oxide and heat, silver perchlorate, sodium peroxide, sodium hydride.

**Special Remarks on Corrosivity:** Not available

**Polymerization:** will not occur

**Section 11: Toxicological Information**

**Routes of Entry:** Absorbed through skin. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute toxicity of the vapor (LC50): 3400 4 hours [Rat].

**Chronic Effects on Humans:**

DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. May cause damage to the following organs: skin, eyes, central nervous system (CNS).

**Other Toxic Effects on Humans:**

Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Acute Potential Health Effects: Skin: Causes skin burns. May cause deep penetrating ulcers of the skin. Eyes: Causes eye burns. May cause retinal damage. Inhalation: May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Inhalation may fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Ingestion: Harmful if swallowed. Causes intestinal tract burns(corrosion or burns of the mouth, throat, oesophagus). Symptoms may include pain, dysphagia, necrotic areas, epigastric pain, which may be associated with nausea, and vomiting, corrosive ulceration, gastric bleeding, profound thirst, scanty urine, shock and circulatory collapse. May also affect behaviour, respiration (dyspnoea), and metabolism, liver, kidneys, and cardio vascular system. Chronic Potential Health Effects: Skin: Repeated or prolonged skin contact

may cause skin sensitization, an allergic reaction and possible destruction and/or ulceration. Inhalation: Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, and perforation of the nasal septum, chest pain and bronchitis. Eyes: Prolonged or repeated eye contact may cause conjunctivitis. Ingestion: Chronic ingestion may cause effects similar to those of acute ingestion.

#### Section 12: Ecological Information

**Ecotoxicity: NA**

**BOD5 and COD:** Not Available

**Products of Biodegradation:**

Possibly hazardous short-term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the products of Biodegradation:** The products of degradation products are less toxic than the product itself.

**Special Remarks on the products of Biodegrading:** not available

#### Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

#### Section 14: Transport Information

**DOT Classification:** CLASS 5.1: Oxidizing material

**Identification:** Perchloric acid

**UNNA:** UN1873

**PG:** I

**Special Provisions for Transport:** Not available.

#### Section 15: Other Regulatory Information

**Federal and State Regulations:** Connecticut hazardous material survey.: Perchloric acid Rhode Island RTK hazardous substances: Perchloric acid Pennsylvania RTK: Perchloric acid Massachusetts RTK: Perchloric acid Massachusetts spill list: Perchloric acid New Jersey: Perchloric acid TSCA 8(b) inventory: Perchloric acid; water

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):**

CLASS C: Oxidizing material. CLASS E: Corrosive liquid.

**DSCL (EEC):**

R5- Heating may cause an explosion. R8- Contact with combustible material may cause fire. R35- Causes severe burns. S23- Do not breathe gas/fumes/vapour/spray [\*\*\*] S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36- Wear suitable protective clothing. S45- In case of accident or if you feel well, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.):**

**Health Hazard: 3**

**Fire Hazard: 0**

**Reactivity: 3**

**Personal Protection: j**

**National Fire Protection Association (U.S.A.):**

**Health: 3**

**Flammability: 0**

**Reactivity: 3**

**Specific hazard:**

**Protective Equipment:**

Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

#### **Section 16: Other Information**

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall *Expresolv Ltd* be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages.

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