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Revision 9/6/2012

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1. ----- CHEMICAL IDENTIFICATION-----

NAME: PERCHLORIC ACID, 10% aqueous solution

SECTION 2. ----- COMPOSITION/INFORMATION ON  
INGREDIENTS -----

CAS #: 7601-90-3  
MF: HCLO4  
EC NO: 231-512-4

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS

OXIDIZING  
CORROSIVE  
HEATING MAY CAUSE AN EXPLOSION.  
CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.  
CAUSES SEVERE BURNS.  
HARMFUL IF SWALLOWED.  
KEEP AWAY FROM COMBUSTIBLE MATERIAL.  
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK

MEDICAL ADVICE

IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).  
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH

PLENTY OF

WATER AND SEEK MEDICAL ADVICE.  
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND

EYE/FACE

PROTECTION.  
DO NOT BREATHE VAPOR.

SECTION 4. ----- FIRST-AID MEASURES-----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED  
PERSON IS CONSCIOUS.

CALL A PHYSICIAN.  
IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES

DIFFICULT,

CALL A PHYSICIAN.  
IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS

OF WATER

FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED  
CLOTHING AND  
SHOES. CALL A PHYSICIAN.  
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS  
AMOUNTS OF WATER  
FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY  
SEPARATING

THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.  
SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA  
CARBON DIOXIDE, DRY CHEMICAL POWDER OR  
APPROPRIATE FOAM.  
SPECIAL FIREFIGHTING PROCEDURES  
WEAR SELF-CONTAINED BREATHING APPARATUS AND  
PROTECTIVE CLOTHING TO

PREVENT CONTACT WITH SKIN AND EYES.  
UNUSUAL FIRE AND EXPLOSIONS HAZARDS  
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.  
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.  
MAY ACCELERATE COMBUSTION.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

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ABSORB ON SAND OR VERMICULITE AND PLACE IN CLOSED  
CONTAINERS FOR

DISPOSAL.  
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL  
PICKUP IS COMPLETE.

EVACUATE AREA.  
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER  
BOOTS AND HEAVY  
RUBBER GLOVES.

SECTION 7. ----- HANDLING AND STORAGE-----  
REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL  
PROTECTION-----

DO NOT BREATHE VAPOR.  
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.  
AVOID PROLONGED OR REPEATED EXPOSURE.  
KEEP AWAY FROM COMBUSTIBLE MATERIALS, HEAT,  
SPARKS, AND OPEN FLAME.

KEEP TIGHTLY CLOSED.  
STORE IN A COOL DRY PLACE.  
USE ONLY IN A CHEMICAL FUME HOOD.  
SAFETY SHOWER AND EYE BATH.  
NIOSH/MSHA-APPROVED RESPIRATOR.  
COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.  
WASH THOROUGHLY AFTER HANDLING.  
REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.  
SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - -

- - - -

APPEARANCE AND ODOR  
COLORLESS LIQUID  
PHYSICAL PROPERTIES  
FLASHPOINT NONE  
VAPOR PRESSURE: 7MM 25 C  
SPECIFIC GRAVITY: 1.535  
SWISS POISON CLASS: 1

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

STABILITY  
STABLE.

CONDITIONS TO AVOID

ALTHOUGH 68-72% COLD PERCHLORIC ACID BEHAVES AS A  
STRONG BUT NON-  
OXIDIZING ACID, IT BECOMES AN EXTREME OXIDANT AND  
POWERFUL DEHYDRATOR  
AT ELEVATED TEMPERATURES (>160°C) OR WHEN  
ANHYDROUS. IT MAY BE FAIRLY  
READILY DEHYDRATED TO THE ANHYDROUS ACID, E.G.  
STRONG CONCENTRATED  
ACIDS (SULFURIC, OLEUM, FUMING NITRIC), INORGANIC  
ANHYDRIDES (SULFUR  
TRIOXIDE AND DIOXIDE, PHOSPHOROUS PENTOXIDE,  
THIONYL CHLORIDE ETC.),  
ORGANIC ANHYDRIDES AND HALOGENS. CONTACT WITH  
ALCOHOLS, GLYCOLS OR  
POLYHYDROXY COMPOUNDS PRODUCE EXPLOSIVE  
COMPOUNDS. CONTACT WITH WOOD,  
CELLULOSE AND ITS DERIVATIVES (PAPER, CARDBOARD,  
ETC.) CAN PRODUCE  
VIOLENT EXPLOSIONS. ATTEMPTS TO DISSOLVE BISMUTH OR  
ITS ALLOYS IN HOT  
PERCHLORIC ACID CARRIES A VERY HIGH RISK OF AN  
EXPLOSION OCCURRING.  
CONTACT WITH SULFOXIDES OR ETHERS MAY PRODUCE  
EXPLOSIONS. THE  
CRYSTALLINE SALT OBTAINED BY THE ACTION OF  
PHOSPHINE ON 68%  
PERCHLORIC ACID AT -20°C IS DANGEROUSLY EXPLOSIVE,  
SENSITIVE TO MOIST  
AIR, INCREASE IN TEMPERATURE, OR FRICTION AND CANNOT  
BE DRIED.

VIOLENT REACTIONS WITH TRICHLORETHYLENE, SODIUM PHOSPHINATE, ZINC

PHOSPHIDE, ORGANOPHOSPHOROUS COMPOUNDS AND UNSATURATED ORGANICS HAVE

OCCURRED ON HEATING WITH PERCHLORIC ACID.

INCOMPATIBILITIES

ORGANIC MATERIALS

FINELY POWDERED METALS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

CARBON MONOXIDE, CARBON DIOXIDE

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES

AND UPPER RESPIRATORY TRACT, EYES AND SKIN.

INHALATION MAY RESULT IN SPASM, INFLAMMATION AND EDEMA OF THE

LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS AND PULMONARY EDEMA.

SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,

WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND

VOMITING.

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND

TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

MAY CAUSE SKIN IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

MAY CAUSE EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER

RESPIRATORY TRACT.

MAY BE HARMFUL IF SWALLOWED.

RTECS #: SC7500000

PERCHLORIC ACID

TOXICITY DATA

ORL-RAT LD50:1100 MG/KG

GTPZAB 17(8),33,1973

SCU-MUS LD50:250 MG/KG

GTPZAB 17(8),33,1973

ORL-DOG LD50:400 MG/KG

GTPZAB 17(8),33,1973

TARGET ORGAN DATA

BEHAVIORAL (EXCITEMENT)  
LUNGS, THORAX OR RESPIRATION (DYSPPNAE)  
NUTRITIONAL AND GROSS METABOLIC (BODY TEMPERATURE  
DECREASE)  
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL  
SUBSTANCES  
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN  
RTECS FOR  
COMPLETE INFORMATION.  
SECTION 12. ----- ECOLOGICAL INFORMATION -----  
DATA NOT YET AVAILABLE.  
SECTION 13. ----- DISPOSAL CONSIDERATIONS -----  
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL  
SERVICE TO DISPOSE OF  
THIS MATERIAL.  
OBSERVE ALL FEDERAL, STATE AND LOCAL  
ENVIRONMENTAL REGULATIONS.  
SECTION 14. ----- TRANSPORT INFORMATION -----  
CONTACT ALDRICH CHEMICAL COMPANY FOR  
TRANSPORTATION INFORMATION.  
SECTION 15. ----- REGULATORY INFORMATION -----  
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EUROPEAN INFORMATION  
EC INDEX NO: 017-006-00-4  
OXIDIZING  
CORROSIVE  
R 5  
HEATING MAY CAUSE AN EXPLOSION.  
R 8  
CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.  
R 35  
CAUSES SEVERE BURNS.  
S 26  
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH  
PLENTY OF  
WATER AND SEEK MEDICAL ADVICE.  
S 36/37/39  
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND  
EYE/FACE  
PROTECTION.  
S 45  
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK  
MEDICAL ADVICE  
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).  
REVIEWS, STANDARDS, AND REGULATIONS  
OEL=MAK

JAN1999 OEL-POLAND: MAC(TWA) 1 MG/M3, MAC(STEL) 3 MG/M3,  
NOHS 1974: HZD 80182; NIS 34; TNF 2227; NOS 13; TNE 7468  
NOES 1983: HZD 80182; NIS 27; TNF 1514; NOS 24; TNE 27220; TFE

11531 EPA TSCA SECTION 8(B) CHEMICAL INVENTORY  
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY

2001 SECTION 16. ----- OTHER INFORMATION-----  
THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT  
DOES NOT PURPORT TO  
BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE.