

SECTION I: GENERAL INFORMATION

Trade Name: The Original C-12 Activator
Product #: 60004

Manufacturer: Puma Chemical
Address: P.O. Box 67
Warne, NC 28909

HMIS/NFPA HAZARD RATINGS: Health.....1
Flammability.....0
Reactivity.....0
Personal Protection.....C
(See Sec. XI for meaning)

EMERGENCY #: (800) 211-7993
Product Info # : (828) 389-3074

Chemical Family: Aqueous solution
Description: Dilute aqueous solution of surfactants and de-oxidizing agents.
End Use: Plating pre-treatment additive

SECTION II: HAZARDOUS INGREDIENTS

CHEMICAL OR COMMON NAME	CAS REG.#	PERCENT	EXPOSURE LIMITS
Sodium Hydroxide	1310-73-2	<1% w/v	TLV-CL 2 mg/ m3
Acetic acid	64-19-7	<1% w/v	TLV 25 mg/ m3 STEL 37 mg/m3

NOTES:..... TLV reported as 8-hr TWA value. "-CL" notation indicates ceiling value. Remaining ingredients are regarded to be non-hazardous under criteria in Appendix A of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SECTION III: PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT @ 1 ATM.....Approximately 212 degrees F
EVAPORATION RATE.....Slower than n-butyl acetate
VAPOR DENSITY.....Heavier than air
SPECIFIC GRAVITY @ 20C.....1.005 - 1.015
PERCENT VOLATILES..... Not Evaluated
SOLUBILITY IN WATER.....Miscible in all proportions
ACIDITY/ALKALINITY.....Alkaline, ph = 10.0-10.5
APPEARANCE AND ODOR.....Clear colorless to pale yellow liquid. Acetic acid odor.

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASS.....N/A. Will not burn
FLASH POINT.....N/A
AIR FLAMMABILITY LIMITS.....N/A
EXTINGUISHING MEDIA.....Water spray, alcohol foam, carbon dioxide, or dry chemical
SPECIAL FIRE FIGHTING PROCEDURES.....Wear self-contained breathing apparatus with full turn-out gear.
UNUSUAL FIRE AND EXPLOSION HAZARDS:..... May emit toxic and irritating fumes or vapors upon thermal decomposition after all water has been evaporated.

SECTION V: REACTIVITY DATA

STABILITY.....Stable
CONDITIONS TO AVOID.....Extreme heat
INCOMPATIBLE MATERIALS.....Strong oxidizing and reducing agents
HAZARDOUS DECOMPOSITION PRODUCTS.....Thermal decomposition may release carbon monoxide and/or carbon dioxide, oxides of sulfur and nitrogen.
HAZARDOUS POLYMERIZATION.....Will not occur

SECTION VI: HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY/EXPOSURE.....Eyes
HEALTH HAZARDS - EFFECTS OF OVEREXPOSURE...
EYES.....May cause mild transient eye irritation due to acetic acid vapors.
SKIN.....As with any chemical, may cause mild transient irritation in individuals with hypersensitive skins.
INHALATION.....Prolonged exposure may cause irritation and coughing.
INGESTION.....Industrial chemicals are never to be taken internally. May cause gastrointestinal disturbances including nausea, vomiting, diarrhea, shock state, and collapse.
EFFECTS OF CHRONIC OVEREXPOSURE.....No evidence of adverse effects from available information.
CARCINOGENICITY REVIEW.....This product is not considered to be a carcinogen according to criteria in Appendix A of the OSHA Hazard Communication Standard [Ref.(1)].
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE..Unknown to the best of our knowledge. No evidence of adverse effects from available information.
FIRST AID PROCEDURES FOR.....
EYE CONTACT...Flush eyes with copious water for at least 15 minutes. If signs of irritation are evident, seek medical attention.
SKIN CONTACT..Remove contaminated clothing and wash skin with soap and water. If signs of irritation are evident, seek medical attention.
INHALATION.....Remove victim to fresh air. If victim experiences continued breathing difficulties, administer oxygen until medical assistance can be rendered. If breathing stops, give artificial respiration and seek medical attention immediately.
INGESTION.....Give at least 2 glasses of water or milk to dilute and induce vomiting, unless victim is unconscious. If symptoms of discomfort persist, seek immediate medical advise and/or attention.

SECTION VII: EXPOSURE CONTROL MEASURES

RESPIRATORY PROTECTION.....Not required under normal handling conditions. Use NIOSH approved respirator under severe mist conditions.
VENTILATION.....Good general ventilation recommended.
PROTECTIVE GLOVES.....Rubber, neoprene or PVC-coated.
EYE PROTECTION.....Chemical splash goggles.

SECTION VII: EXPOSURE CONTROL MEASURES (continued from page 2)

OTHER PROTECTIVE EQUIPMENT...Use of apron or coveralls and rubber/neoprene boots is also recommended.

EMERGENCY EQUIPMENT.....Safety showers, eye wash,oxygen supply and first aid kits must be readily accessible in areas where this product is used.

SECTION VIII: SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED...

Wear safety equipment. Contain spill and absorb with inert material (sand, clay, or diatomite. Sweep/shovel as much as possible into polyethylene container and isolate until material can be disposed of. Rinse spill areas with copious water into waste treatment system.

WASTE DISPOSAL METHODS...

Dispose of in accordance with applicable local, state, and federal regulations by treatment in an approved facility. Consult authorities to ascertain proper disposal procedures prior to disposing.

SECTION IX: SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING...

As a norm of good industrial hygiene, avoid breathing vapors or mists, and contact with eyes and skin. Always wear safety equipment when using. Wash thoroughly after using.

Store in cool dry area, away from incompatible materials (see Section V) and from heat sources. Protect from physical damage.

OTHER PRECAUTIONS...

For industrial use only. Industrial chemicals are never to be taken internally. Use in a manner or application different than that described here or in the product's technical literature may result in a potential hazard to the user and result in serious injury!

NOTE : The data contained in this Material Safety Data Sheet apply only to the product itself, not to the solutions in which it is used. The user is urged to refer to the products technical literature to identify the solution's basic ingredients and to assess their occupational hazards accordingly.

SECTION X: OTHER REGULATORY REQUIREMENTS

TOXIC SUBSTANCES CONTROL ACT (TSCA)...The chemical ingredients in this product are listed on the TSCA Inventory.

MASSACHUSETTS TOXIC SUBSTANCE LIST...This product does not contain ingredients listed on the Massachusetts Toxic Substance List (Ref. 6) besides the substances listed in the HAZARDOUS INGREDIENTS Section.

SECTION X: OTHER REGULATORY REQUIREMENTS (continued from page 3)

CALIFORNIA PROPOSITION 65...This product is not known to contain chemicals listed as being known to the State of California to cause cancer or birth defects or other reproductive harm, under the California Safe Drinking Water & Toxic Enforcement Act of 1986 (Proposition 65).

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986...This product contains the following chemicals subject to the reporting requirements of Sec.313 of the Emergency Planning and Right-to-Know Act of 1986 and of 40 CFR 372:

CHEMICAL NAME	CAS REG. #	WT. %
Sodium hydroxide	1310-73-2	1 max.

SECTION XI: DOCUMENTARY INFORMATION

EFFECTIVE DATE.....11/01/91 APPROVAL: (on file)

SUPERSEDES.....8/30/90

- REFERENCES.....(1) 29 CFR 1910.1200, 29 CFR 1910.1000 (Subpart 2).
(2) TLV's and Biological Exposure Indices for 1990-1991, ACGIH.
(3) IARC Monographs.
(4) Registry of Toxic Effects of Chemical Substances (RTECS), 1985-1986. NIOSH, April, 1987.
(5) National Toxicology Program (NTP) Annual Report on Carcinogens.
(6) 105 CMR 670.00 3/31/86 - Massachusetts Toxic Substance List.
(7) Raw Material Safety Data Sheets.

HIMS HAZARD RATING....(4)= Severe hazard
(3)= Serious hazard
(2)= Moderate hazard
(1)= Slight hazard
(0)= Insignificant hazard
" * " = on HEALTH indicates Chronic hazard

ABBREVIATIONS.....> = greater than
< = less than
N/A = not applicable
@ or~ = approximately

The information and recommendations contained herein are based upon data believed to be correct and are presented to comply with OSHA Hazard Communication Standard (29 CFR 1910.1200). However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein or to the results to be obtained from their use thereof. Seller assumes no responsibility for injury to buyer or to third persons or for any damage to any property and buyer assumes all such risks.

*****END OF MSDS*****