



CYANTEK CORPORATION

REVISION DATE: 08/11/94

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MATERIAL SAFETY DATA SHEET

SECTION I

MATERIAL INFORMATION

PRODUCT NAME: CR-12S

TRADE NAME: CR-12S Chromium Etchant w/
AND SYNONYMS Surfactant

CAS NUMBER: N/A

CHEMICAL FAMILY: Acid / Oxidizer

FORMULA: $\text{HClO}_4 + \text{Ce}(\text{NH}_4)_2(\text{NO}_3)_6 + \text{H}_2\text{O}$
+ Surfactant

MANUFACTURER: CYANTEK CORPORATION
3055 OSGOOD COURT
FREMONT, CA 94538
(510) 651-3341

24 HOUR EMERGENCY RESPONSE
CHEMTREC
800 424-9300

NFPA RATING

HEALTH:2

FIRE:0

REACTIVITY:2

0=LEAST,1=SLIGHT,2=MODERATE,
3=SERIOUS,4=SEVERE

SECTION II

HAZARDOUS INGREDIENTS

INGREDIENTS	% (wt)	EXPOSURE LIMITS	CAS NUMBER
Perchloric Acid	13%	None Established	7601-90-3
Ceric Ammonium Nitrate	21%	None Established	16774-21-3
Potassium Perfluoroalkyl Sulfonates	<1%	1 mg/m ³ (Suggested)	N/A

SECTION III

PHYSICAL DATA

MOLECULAR WEIGHT:	N/A	SOLUBILITY IN WATER:	Complete
BOILING POINT (°F):	>212	SPECIFIC GRAVITY (g/ml):	1.23
FREEZING POINT (°F):	Approx. 32	APPEARANCE & COLOR:	Orange / Red liquid
VAPOR PRESSURE (mm Hg):	N/A	ODOR:	Faint Acid Odor
POR DENSITY (Air =1):	N/A		
PERCENT VOLATILES (by vol):	N/A		

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SECTION IV

FIRE AND EXPLOSION AND HAZARD DATA

FLASH POINT (°F): N/A (TAG CLOSED CUP)

EXPLOSION LIMIT (% by vol.): N/A LOWER: UPPER:

EXTINGUISHING MEDIA:

This substance is not combustible but is very reactive.
Use water fog or carbon dioxide.

SPECIAL FIREFIGHTING PROCEDURES:

Use water spray to cool exposed containers. Block sewers in the path of spreading spill to prevent entry. Remove containers of this material to cool areas. Prevent the boiling of this formulation.

FIREFIGHTERS SHOULD WEAR:

Wear goggles.
Wear rubber gloves and boots.
Wear acid protective clothing.
Wear self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

No explosion hazard.
Dangerous when heated to decomposition. Emits toxic fumes.
Material is not combustible, but is hazardous if concentrated by evaporation.

SECTION V

HEALTH HAZARD INFORMATION

LISTED AS CARCINOGEN:

Not listed as carcinogen.

EFFECTS OF OVEREXPOSURE:

Eye contact is very irritating and can be corrosive.
Ingestion causes severe burns of mouth and stomach.
Prolonged contact with skin may cause a burn.

FIRST AID PROCEDURES:

EYE CONTACT:

Hold eyelids open and flush with plenty of water.
Get medical care.

SKIN CONTACT:

Flush affected areas with plenty of water.
If irritation persists after washing, get medical attention.
Remove contaminated clothing. Do not scrub.

INHALATION:

Move to fresh air.
Consult a physician if prolonged exposure occurs.

INGESTION:

Give large amounts of water.
Get medical attention immediately.

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SECTION VI

REACTIVITY DATA

STABILITY:

Stable under normal conditions.

INCOMPATIBILITY:

Incompatible with strong caustics.

This formulation contains water so it will react with water-reactive substances.

HAZARDOUS DECOMPOSITION PRODUCTS:

Releases toxic gases if boiled.

Releases flammable and toxic corrosive gases when heated to evaporation.

HAZARDOUS POLYMERIZATION:

No hazardous polymerization expected.

SECTION VII

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN:

Contain the spill by diking or absorbing the liquid.

Ventilate area of spill or leak.

Persons with no protective equipment/clothes should be restricted from areas of spill/leak.

Avoid skin contact with substance.

Handling should be the same as for all corrosive acids.

Do not allow this substance to enter into the sewer system.

WASTE DISPOSAL:

Dispose in approved disposal site following federal, state, local regulations.

It does not contain heavy metals.

Empty containers could be disposed in regular disposal site after triple rinse.

SECTION VIII

SPECIAL PROTECTION

Use gloves and splash-proof safety goggles.

Eye wash fountain should be available.

Use protective clothing of rubber or similar nonpermeable material.

Use NIOSH-approved respirator for acid vapors.

VENTILATION:

Do not use dilution ventilation.

Do not use dry dust collectors.

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SECTION IX

SPECIAL PRECAUTIONS

Store in a cool place.
Avoid skin contact or breathing the vapors of this formulation.
Chemical is very reactive. Store away from other chemicals.

SECTION X

REGULATORY INFORMATION

SARA/TITLE III DATA
(For Ingredients)

CERCLA HAZARDOUS SUBSTANCES: None
(WITH REPORTABLE QUANTITIES)

EXTREMELY HAZARDOUS SUBSTANCES: None

TOXIC CHEMICALS (SECTION 313): None

DOT INFORMATION

HAZARD CLASS: Corrosive

PROPER SHIPPING NAME: Corrosive Liquid N.O.S. (Perchloric Acid,
Ceric Ammonium Nitrate)

UN/NA NUMBER: UN 1760

TSCA INVENTORY
(For Ingredients)

TSCA INVENTORY: All ingredients on TSCA inventory.

PROPOSITION 65 STATUS
(For Ingredients)

PROP. 65 LIST: No ingredients on Prop. 65 list.

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