

ZACLON LLC MATERIAL SAFETY DATA SHEET

IDENTIFICATION

NAME Zaclon* Galvanizing Fluxes

GRADES K; F; C; CS

CHEMICAL FAMILY Inorganic Salt Mixtures

SARA/TITLE III STATUS COMPONENTS See ADDITIONAL INFORMATION and HAZARDOUS Sect. Pg. 2

CAS REGISTRY NUMBER See Page 2

CAS NAME Zinc Ammonium Chloride

FORMULA Proprietary

PRODUCT INFORMATION PHONE 1-800-356-7327

TRANSPORTATION EMERGENCY PHONE 1-800-424-9300

SUPPLIER/MANUFACTURER ADDRESS

Zaclon LLC
2981 Independence Rd.
Cleveland, Ohio 44115

PHYSICAL DATA

BOILING POINT, 760 mm Hg	Decomposes
MELTING POINT	~343 °C (~650 °F)
BULK DENSITY	See page 2.
VAPOR PRESSURE	Nil
VAPOR DENSITY	Not Applicable
SOLUBILITY IN WATER	Not Determined.
pH INFORMATION	Not Determined.
EVAPORATION RATE (BUTYL ACETATE=1)	0
FORM	Solid
APPEARANCE	Granular or Fine particle size
COLOR	White to off-white.
ODOR	Odorless

* Reg. U.S. Pat. & Tm. Off., Zaclon LLC
Zaclon® Galvanizing Fluxes are made only by Zaclon LLC

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

BULK DENSITY

<u>GRADE</u>	<u>CAS. NO</u>	<u>(LB/Cubic Ft)</u>
C, CS	14639-97-5	67
K	14639-98-6	67
F	14639-98-6	67

COMPONENTS:

<u>Materials</u>	<u>CAS Number</u>	<u>Approximate %</u>
Zinc Chloride*	7646-85-7	25 to 60
Ammonium Chloride**	12125-02-9	40 to 75

* Regulated as a Toxic Chemical under Section 313 of Title III/SARA, and 40 CFR Part 372.

**Ammonium Salts Generate Ammonia in Water. For SARA 313 Requirements, 10% of the Total ammonia present in aqueous ammonia solutions is reportable.

HAZARDOUS REACTIVITY:

INSTABILITY Stable.

INCOMPATIBILITY Incompatible with cyanides and sulfides (may release toxic gases).

DECOMPOSITION At high temperatures, (~343 °C; ~650 °F) as in intended use, ammonium chloride fumes, zinc oxide fumes, zinc chloride fumes, and ammonia and hydrogen chloride gases may be released.

POLYMERIZATION Will not occur.

FIRE AND EXPLOSION DATA:

FLASH POINT Will not burn.

FLAMMABLE LIMITS IN AIR, % BY VOL

LOWER Not Applicable. **UPPER** Not Applicable

AUTOIGNITION TEMPERATURE Not Applicable.

AUTODECOMPOSITION TEMPERATURE See "Decomposition"

FIRE AND EXPLOSION HAZARDS

May release ammonium chloride fumes, zinc oxide fumes, zinc chloride fumes, and ammonia and hydrogen chloride gases in a fire.

EXTINGUISHING MEDIA As appropriate for combustibles in area.

SPECIAL FIRE FIGHTING INSTRUCTIONS None.

HEALTH HAZARD INFORMATION

PRINCIPAL HEALTH HAZARDS

(Including Significant Routes, Effects, Symptoms of Over-Exposure, and Medical Conditions Aggravated by Exposure)

Causes eye burns. Causes skin irritation or burns. Causes irritation of lungs and upper respiratory passages.

Inhalation 10 Minute LC50 for Zinc Chloride: 2000 MG/M³ in rats.

Oral LD50 for zinc chloride: 1100 mg/kg in rats.

Oral LD50 for ammonia chloride: 1650 mg/kg in rats.

The product is corrosive to the eyes and corrosive or irritating to skin. Toxic effects described in animals from short exposures include corrosion of mucosal surfaces, liver effects, and kidney effects. Toxic effects in animals occurring only with inhalation exposures are lower respiratory infection with pulmonary edema. Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.

Human health effects of overexposure by inhalation, ingestion, or skin or eye contact may initially include: eye irritation with discomfort, tearing, or blurring of vision; skin irritation with discomfort or rash; or irritation of the upper respiratory passages. Higher exposures may lead to these effects: skin and eye burns or ulceration; temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; possibly modest initial symptoms, followed in hours by severe shortness of breath, requiring prompt medical attention; fatality from gross overexposure by fume inhalation or by significant ingestion. There are inconclusive or unverified reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.

When the Zaclon® products are heated to high temperatures as those encountered in the galvanizing process, irritating zinc chloride fumes and gaseous hydrogen chloride may be released. Severe exposures may cause pulmonary edema. Heating may also release zinc oxide fumes which may cause metal fume fever.

CARCINOGENICITY

No ingredient listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

EXPOSURE LIMITS (PEL [OSHA], TLV [ACGIH], etc.)

Zaclon fluxes are not listed as hazardous materials by OSHA or ACGIH. However, zinc chloride, zinc oxide and ammonium chloride fumes and hydrogen chloride gas may be released at high temperatures. The OSHA 8-hour Time Weighted Average (TWA) and ACGIH TLV® - TWA limits for these products are: Zinc Chloride = 1 mg/m³; Zinc Oxide = 5 mg/m³; Hydrogen Chloride = 5 ppm or 7 mg/m³ (ceiling). Exposure limits for ammonium chloride have not been established by OSHA. The ACGIH 8-hour TLV-TWA is 10 mg/m³ for ammonium chloride fumes and the ACGIH Short Term Exposure Limit (STEL) is 20 mg/m³ for ammonium chloride fumes.

SAFETY PRECAUTIONS Do not get in eyes, on skin, on clothing. Avoid breathing dusts, mists, or fumes. Wash thoroughly after handling.

FIRST AID

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse and discard shoes.

If inhaled, remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

If swallowed, do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN

Emesis should be initiated unless there is evidence of burns of the oral mucosa. Gastric lavage may be advisable. In some cases of excess body loads of zinc, treatment with calcium disodium acetate may be effective.

PROTECTION INFORMATION

GENERALLY APPLICABLE CONTROL MEASURES

Good ventilation should be provided to keep dust and fume concentrations below the exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Have available and wear as appropriate to prevent any possibility of eye contact or reasonable probability of skin contact: coverall chemical splash goggles; neoprene or PVC rubber gloves, apron, boots; long sleeve shirt and pants. If considerable contact is likely, wear impervious neoprene or PVC rubber clothing or acid suit. If air concentrations exceed exposure limits, use OSHA-permissible respiratory equipment.

DISPOSAL INFORMATION

SPILL, LEAK OR RELEASE Sweep up spillage and place in a plastic lined container for disposal. Flush spill area to chemical sewer with plenty of water. Comply with Federal, State, and local regulations or reporting releases.

WASTE DISPOSAL Comply with Federal, State, and local regulations. If approved, may be flushed to chemical sewer or transferred to a licensed disposal contractor.

SHIPPING INFORMATION

DOT/IMO

PROPER SHIPPING NAME

Corrosive (Zinc Chloride, anhydrous, mixture)
RQ, Environmentally Hazardous
Substances Solid, N.O.S. (Contains Zinc Ammonium Chloride)

HAZARD CLASS

Corrosive

HAZARD CLASS

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I.D. NUMBER:

UN 2331 (Zinc Chloride, anhydrous, mixture)

PACKING GROUP:

PG III

REPORTABLE QUANTITY:

1,000 lbs.(Zinc Ammonium Chloride)

OTHER INFORMATION

SHIPPING CONTAINERS 50 lb. bags, drums and "super sacks".

STORAGE CONDITIONS Store in a tightly closed container in a dry place. Do not store with cyanides or sulfides.

NPCA - HMIS RATINGS

Health 3
Flammability 0
Reactivity 1
Personal Protection -

*Personal protection ratings to be supplied by user depending on use conditions.

TITLE III HAZARD CLASSIFICATION:

Acute Yes
Chronic No
Fire No
Reactivity No
Pressure No

ADDITIONAL INFORMATION AND REFERENCES

For further information, see the Zaclon® Galvanizing Flux Data Sheet.

DATE OF LATEST REVISION/REVIEW: May 2008

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