

ZACLON LLC MATERIAL SAFETY DATA SHEET

IDENTIFICATION

NAME Zaclon* Galvanizing Fluxes

GRADES A; AF; AB; A Special

CHEMICAL FAMILY Inorganic Salt Mixtures

FORMULAS Proprietary

MANUFACTURER/DISTRIBUTOR Zaclon LLC

ADDRESS 2981 Independence Road Cleveland, Ohio 44115	PRODUCT INFORMATION PHONE (800) 356-7327
---	--

TRANSPORTATION EMERGENCY PHONE (800) 424-9300

PHYSICAL DATA

BOILING POINT, 760 mm Hg
Decomposes

MELTING POINT
204 to 232 °C (400 to 450 °F)

SPECIFIC GRAVITY
Not Applicable.

VAPOR PRESSURE
Nil

VAPOR DENSITY
Not Volatile.

SOLUBILITY IN WATER
Not Determined.

pH INFORMATION

2.5 TO 3.5 (ca. 2 lb/gal solution)

EVAPORATION RATE (BUTYL ACETATE=1)

0

FORM
Solid

APPEARANCE
Granular

COLOR
White to Off-White. Odorless

ODOR

* 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.-

HAZARDOUS COMPONENTS

<u>Materials</u>	<u>CAS No.</u>	<u>Approximate %</u>
GRADE: A; AF; A Special		
Zinc Chloride*	7646-85-7	50 to 70
Ammonium Chloride	1 2125-02-9	1 to 5

GRADE: AB		
Zinc Chloride*	7646-85-7	< 70

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

NON-HAZARDOUS COMPONENTS

GRADE: A; AF; A Special		
Potassium Chloride	7447-40-7	< 20
Sodium Chloride	7647-14-5	< 25

GRADE: AB		
Potassium Chloride	7447-40-7	< 40

HAZARDOUS REACTIVITY

INSTABILITY Stable.

INCOMPATIBILITY

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

DECOMPOSITION At high temperatures, 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 Not available.

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: 1100mg/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, ammonium chloride, and zinc oxide fumes and hydrogen chloride and ammonia gases may be released at high temperatures. The OSHA 8-hour time weighted average (TWA) and ACGIH TLV® - TWA 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. Exposure limits for sodium chloride and potassium chloride have not been established by ACGIH.

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 general 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 on 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 Zinc Chloride, Anhydrous, Mixture

HAZARD CLASS 8, Corrosive Material

I.D. NUMBER: UN NO. 2331

PACKING GROUP: P.G. III

REPORTABLE QUANTITY 1,000 Lbs (Zinc Chloride)

OTHER INFORMATION

SHIPPING CONTAINERS 55 gal. drums

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

ADDITIONAL INFORMATION AND REFERENCES

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

NPCA - HMIS RATINGS

<u>Health</u>	<u>3</u>
<u>Flammability</u>	<u>0</u>
<u>Reactivity</u>	<u>1</u>
<u>Personal Protection</u>	-

Personal Protection Rating to be supplied by user depending on use conditions.

DATE OF LATEST REVISION/REVIEW: March 2005

PERSON RESPONSIBLE FOR MSDS: J.L. Curry

Zaclon LLC, 2981 Independence Road,
Cleveland, Ohio 44115
800-356-7327 or 216-271-1601