

# ZACLON LLC

## MATERIAL SAFETY DATA SHEET

### IDENTIFICATION

**NAME:** Zaclon\* ZR Solution  
**SARA/TITLE III STATUS** See ADDITIONAL INFORMATION  
and HAZARDOUS COMP. Section Pg. 2  
**GRADE:** 40% - 50%  
**CHEMICAL FAMILY:** Inorganic Salt Solution

**MANUFACTURER/DISTRIBUTOR:** Zaclon LLC  
**PRODUCT INFORMATION PHONE:** (800) 356-7327

**ADDRESS:** 2981 Independence Road  
Cleveland, Ohio 44115  
**TRANSPORTATION EMERGENCY PHONE:** CHEMTREC (800) 424-9300

### PHYSICAL DATA

**BOILING POINT, 760 mm Hg** 120 to 157 °C (248 to 315 degF3)  
**MELTING POINT** Not Applicable

**SPECIFIC GRAVITY** 1.42 TO 1.57  
**VAPOR PRESSURE** Not Determined

**VAPOR DENSITY** Vapor is water.  
**SOLUBILITY IN WATER** 100%

**pH INFORMATION** <1 to 2.5  
**EVAPORATION RATE (BUTYL ACETATE=1)** <1 to >1

**FORM** Liquid  
**APPEARANCE** Clear

**COLOR** Colorless to light yellow  
**ODOR** Odorless

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

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

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### **HAZARDOUS COMPONENTS**

<b><u>MATERIALS APPROXIMATE %</u></b>	<b><u>CAS NO.</u></b>
Zinc Chloride* 40 to 50	7646-85-7
Ammonium Bifluoride** .5 to 2.0	001-341-497
Ammonium Chloride** 1 to 4	12125-02-9

\*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.

### **NON HAZARDOUS COMPONENTS**

<b><u>MATERIALS APPROXIMATE %</u></b>	<b><u>CAS NO.</u></b>
Water 50	7732-18-5

### **HAZARDOUS REACTIVITY**

**INSTABILITY** Stable.

**INCOMPATIBILITY** Incompatible with cyanides (may release toxic HCN gas) and sulfide salts (may release toxic H<sub>2</sub>S gas).

**DECOMPOSITION** Will not occur except at high temperatures.

**POLYMERIZATION** Will not occur.

### **FIRE AND EXPLOSION DATA**

**FLASH POINT** Will not burn. **FLAMMABLE LIMITS IN AIR, % BY VOL.**

**AUTOIGNITION TEMPERATURE** Not Applicable  
Not Applicable

**Lower** Not Applicable  
**Upper** Not Applicable

**AUTODECOMPOSITION TEMPERATURE** Not Available.

**FIRE AND EXPLOSION HAZARDS** May release zinc oxide fumes, zinc chloride fumes, and hydrogen chloride gas 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 burns. Fumes, dust from dried-down product, or mist may cause injury to the respiratory tract. Severe exposure may cause lung damage.

Inhalation 10 minute LC50 for zinc chloride: 2000 MG/M<sup>3</sup> in rats.

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

The compound, in either solid or solution form, is corrosive to the eyes and skin. Toxic effects described in animals from short exposure include corrosion of mucosal surfaces, liver effects, and kidney effects. Toxic effects in animals occurring only with inhalation exposure are lower respiratory irritation 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 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 burns or ulceration; eye irritation with discomfort, tearing, or blurring of vision; 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; or 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.

### **CARCINOGENICITY**

Not 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. After drying, however, zinc chloride, zinc oxide, ammonium chloride, ammonium bifluoride, 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/m<sup>3</sup>; zinc oxide = 5 mg/m<sup>3</sup>; ammonium bifluoride - 2.5 mg/m<sup>3</sup> as F, 2 ppm as NH<sub>3</sub> (3 ppm as NH<sub>3</sub> STEL); hydrogen chloride = 5 ppm or 7 mg/m<sup>3</sup> (ceiling).

Exposure limits for ammonium chloride have not been established by OSHA. The ACGIH 8 hour TLV®-TWA is 10 mg/m<sup>3</sup> for ammonium chloride fumes and ACGIH Short Term Exposure Limit (STEL) is 20 mg/m<sup>3</sup> for ammonium chloride fumes.

### **SAFETY PRECAUTIONS**

Do not get in eyes, on skin, on clothing.

Avoid breathing fumes, dust from dried-down product, or mist.

Wash thoroughly after handling.

### **FIRST AID**

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

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 or milk. Call a physician. Never give anything by mouth to an unconscious person.

### **PROTECTION INFORMATION**

#### **GENERALLY APPLICABLE CONTROL MEASURES**

Good general ventilation should be provided to keep concentrations below the exposure limit.

#### **PERSONAL PROTECTIVE EQUIPMENT**

Coverall chemical splash goggles and rubber gloves. Where contact with concentrated zinc chloride is likely, a full-length face shield, rubber apron, pants, jacket, and shoes may be desirable.

## **DISPOSAL INFORMATION**

### **SPILL, LEAK OR RELEASE**

Comply with Federal, State and local regulations on reporting releases. Flush spill area with plenty of water to an approved chemical sewer.

### **WASTE DISPOSAL**

Comply with Federal, State and local regulations. If approved, may be transferred to a licensed contractor, or flushed to sewer to waste treatment system.

## **SHIPPING INFORMATION**

### **DOT/IMO (172.102)**

**PROPER SHIPPING NAME** Zinc Chloride, Solution

**HAZARD CLASS** 8, Corrosive Material

**I.D. NUMBER** UN 1840

**PACKING GROUP** P.G. III

**REPORTABLE QUANTITY** **1,000 lbs.**

## **OTHER INFORMATION**

**SHIPPING CONTAINERS** Tank cars, tank trucks, 30 and 55 gallon PE drums

**STORAGE CONDITIONS** Keep drums in upright position; do not roll drums on side. Keep containers closed.

## **NPCA - HMIS RATINGS**

Health 3

Flammability 0

Reactivity 0

Personal Protection \*

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

## **TITLE III HAZARD CLASSIFICATION:**

Acute Yes

Chronic Yes

Fire No

Reactivity No

Pressure No

## **ADDITIONAL INFORMATION AND REFERENCES**

For further information see Zaclon's - Zaclon® Galvanizing Flux Data Sheet and Zaclon's - Zinc Chloride Data Sheet

**DATE OF LATEST REVISION/REVIEW:** May 2008

**PERSON RESPONSIBLE FOR MSDS:** J.L. CURRY  
Zaclon LLC  
2981 Independence Road  
Cleveland, Ohio 44115  
800-356-7327  
216-271-1601