Safety Data Sheet

## **SECTION 1: Identification**

#### 1.1. Product identifier

Product name : Zaclon Galvanizing Fluxes (A;AB)

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Manufacturing

#### 1.3. Supplier

Zaclon LLC

2981 Independence Road Cleveland, OH 44115 T 800-356-7327

#### 1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

#### **SECTION 2: Hazard identification**

#### 2.1. Classification of the substance or mixture

#### **GHS-US/CAN** classification

Acute toxicity (oral) Category 4
Skin corrosion/irritation Category 1B
Specific target organ toxicity (single exposure) Category 3
Hazardous to the aquatic environment - Acute Hazard Category 1
Hazardous to the aquatic environment - Chronic Hazard Category 1
H410

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

#### **GHS-US/CAN labeling**

Precautionary statements

Hazard pictograms







Signal word : Danger

Hazard statements : H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

H335 - May cause respiratory irritation

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

: P260 - Do not breathe dust/fume/gas/mist/vapours/spray.

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 - Wash hands, forearms and face thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water

P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER or doctor.

P312 - Call a POISON CENTER or doctor if you feel unwell.

P321 - Specific treatment (see supplemental first aid instruction on this label).

P330 - Rinse mouth.

P363 - Wash contaminated clothing before reuse.

P391 - Collect spillage.

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

P405 - Store locked up.

P501 - Dispose of contents/container to hazardous or special waste collection point, in

accordance with local, regional, national and/or international regulation.

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## Safety Data Sheet

#### 2.3. Other hazards

No additional information available

#### 2.4. Unknown acute toxicity

No data available

## SECTION 3: Composition/Information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS US classification
Zinc chloride	(CAS-No.) 7646-85-7	50 – 70	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Ammonium chloride	(CAS-No.) 12125-02-9	1 – 30	Acute Tox. 4 (Oral), H302	Acute Tox. 4 (Oral), H302

Full text of hazard classes and H-statements : see section 16

#### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

First-aid measures after inhalation

: 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.

First-aid measures after skin contact

: In case of contact, immediately flush 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

First-aid measures after eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while

removing contaminated clothing and shoes. Call a physician.

First-aid measures after ingestion

: If swallowed, do not induce vomiting. Give large quantities of water. Call a physician

immediately. Never give anything by mouth to an unconscious person.

#### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Causes irritation of lungs and upper respiratory passages.

Symptoms/injuries after skin contact : Causes severe skin burns. Symptoms/injuries after eye contact : Causes eye damage.

Symptoms/injuries after ingestion : Not a likely route of exposure during normal product use. May be fatal from significant ingestion.

## 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

#### **SECTION 5: Firefighting measures**

## 5.1. Extinguishing media

Suitable extinguishing media : As appropriate for combustibles in area.

Unsuitable extinguishing media : None.

## 5.2. Special hazards arising from the substance or mixture

Fire hazard : May release ammonium chloride fumes, zinc oxide fumes, zinc chloride fumes, and ammonia

and hydrogen chloride gases in a fire.

Explosion hazard : None known.

## 5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

#### **SECTION 6: Accidental release measures**

## 6.1. Personal precautions, protective equipment and emergency procedures

## 6.1.1. For non-emergency personnel

No additional information available

## 6.1.2. For emergency responders

No additional information available

#### 6.2. Environmental precautions

Avoid release to the environment.

#### 6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in

accordance with local, state and federal regulations.

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## 6.4. Reference to other sections

No additional information available

## **SECTION 7: Handling and storage**

## 7.1. Precautions for safe handling

Precautions for safe handling

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

## 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a tightly closed container in a dry place. Do not store with cyanides or sulfides.

## SECTION 8: Exposure controls/personal protection

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8.1.	L	юш	поп	Dara	meters

sin seminary parameters			
Ammonium chloride (12125-02-9)			
Canada (Alberta) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Quebec) - Occupational Exposure Limits			
VECD (mg/m³)	20 mg/m³ (fume)		
VEMP (mg/m³)	10 mg/m³ (fume)		
Canada (British Columbia) - Occupational Exposure	e Limits		
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Manitoba) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (New Brunswick) - Occupational Exposure	Limits		
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Newfoundland and Labrador) - Occupation	nal Exposure Limits		
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Nova Scotia) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Nunavut) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Northwest Territories) - Occupational Expo	osure Limits		
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Ontario) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Prince Edward Island) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		
OEL STEL (mg/m³)	20 mg/m³ (fume)		
Canada (Saskatchewan) - Occupational Exposure Limits			
OEL TWA (mg/m³)	10 mg/m³ (fume)		

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Canada (Yukon) - Occupational Exposure Limits	Ammonium chloride (12125-02-9)			
OEL TWA (mg/m²)         10 mg/m² (fume)           OEL STEL (mg/m²)         20 mg/m² (fume)           MSA - ACOHH - Occupational Exposure Limits         ACGH TWA (mg/m²)           ACGH TWA (mg/m²)         10 mg/m² (fume)           ACGH STEL (mg/m²)         20 mg/m² (fume)           Zine chloride (*764-85-7)         Canada (Alberta) - Occupational Exposure Limits           OEL TYAL (mg/m²)         1 mg/m² (fume)           CEL STEL (mg/m²)         2 mg/m² (fume)           Canada (Robebe) - Occupational Exposure Limits         VEMP (mg/m²)           VEMP (mg/m²)         1 mg/m² (fume)           Canada (Rinish Columbia) - Occupational Exposure Limits         Cel TYAL (mg/m²)           CEL TYAL (mg/m²)         2 mg/m² (fume)           Canada (Manitoba) - Occupational Exposure Limits         Cel TYAL (mg/m²)           CEL TYAL (mg/m²)         1 mg/m² (fume)           CEL TYAL (mg/m²)         2 mg/m² (fume)           CAnada (New Brunswick) - Occupational Exposure Limits         Cel TYAL (mg/m²)           CEL TYAL (mg/m²)         1 mg/m² (fume)           CAL TYAL (mg/m²)         2 mg/m² (fume)           CAnada (New Social) - Occupational Exposure Limits         Cel TYAL (mg/m²)           CEL TYAL (mg/m²)         1 mg/m² (fume)           CAL TYAL (mg/m²)         2 mg/m² (fume)	OEL STEL (mg/m³)	20 mg/m³ (fume)		
OEL STEL (mg/m²)   20 mg/m² (fume)	Canada (Yukon) - Occupational Exposure Limits			
USA - ACGIH - Occupational Exposure Limits  ACGIH TYMA (mg/m²) 10 mg/m² (fume)  Zinc chloride (7646-85-7)  Canada (Alberta) - Occupational Exposure Limits  OEL TYMA (mg/m²) 1 mg/m² (fume)  Canada (Quebec) - Occupational Exposure Limits  VEMP (mg/m²) 1 mg/m² (fume)  Canada (Quebec) - Occupational Exposure Limits  VEMP (mg/m²) 1 mg/m² (fume)  Canada (Guebec) - Occupational Exposure Limits  VEMP (mg/m²) 1 mg/m² (fume)  Canada (Ristish Columbia) - Occupational Exposure Limits  OEL TYMA (mg/m²) 2 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 2 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL STEL (mg/m²) 2 mg/m² (fume)  Canada (New Brunswick) - Occupational Exposure Limits  OEL TYMA (mg/m²) 1 mg/m² (fume)  CEL STEL (mg/m²) 2 mg/m² (fume)  CEL STEL (mg/m²) 1 mg/m² (fume)  CEL STEL (mg/m²) 2 mg/m² (fume)  Canada (New Socila) - Occupational Exposure Limits  OEL TYMA (mg/m²) 1 mg/m² (fume)  CEL STEL (mg/m²) 2 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 2 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 2 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL TYMA (mg/m²) 2 mg/m² (fume)  CEL TYMA (mg/m²) 1 mg/m² (fume)  CEL STEL (mg/m²) 2 mg/m² (fume)	OEL TWA (mg/m³)	10 mg/m³ (fume)		
ACGIH TWA (mg/m²)   10 mg/m² (tume)	OEL STEL (mg/m³)	20 mg/m³ (fume)		
ACGIH STEL (mgm²)   20 mgm² (tume)	USA - ACGIH - Occupational Exposure Limits			
Zinc chloride (7646-85-7)   Canada (Alborta) - Occupational Exposure Limits   OEL TWA (mg/m²)   1 mg/m² (tume)     Canada (Quebec) - Occupational Exposure Limits   VEMP (mg/m²)   1 mg/m² (tume)     Canada (Quebec) - Occupational Exposure Limits   VEMP (mg/m²)   1 mg/m² (tume)     Canada (British Columbia) - Occupational Exposure Limits   OEL TWA (mg/m²)   2 mg/m² (tume)     OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Manitoba) - Occupational Exposure Limits   OEL TWA (mg/m²)   1 mg/m² (tume)     Canada (Manitoba) - Occupational Exposure Limits   OEL TWA (mg/m²)   2 mg/m² (tume)     Canada (New Brunswick) - Occupational Exposure Limits   OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (New Strunswick) - Occupational Exposure Limits   OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (New Scotia) - Occupational Exposure Limits   OEL TWA (mg/m²)   1 mg/m² (tume)     OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Nova Scotia) - Occupational Exposure Limits   OEL TWA (mg/m²)   1 mg/m² (tume)     Canada (Nova Scotia) - Occupational Exposure Limits   OEL TWA (mg/m²)   2 mg/m² (tume)     Canada (Nova Scotia) - Occupational Exposure Limits   OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Northwest Territories) - Occupational Exposure Limits   OEL TWA (mg/m²)   1 mg/m² (tume)     Canada (Northwest Territories) - Occupational Exposure Limits   OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Orthwest Territories) - Occupational Exposure Limits   OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Orthrio) - Occupational Exposure Limits   OEL TWA (mg/m²)   1 mg/m² (tume)     Canada (Orthrio) - Occupational Exposure Limits     OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Orthrio) - Occupational Exposure Limits     OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Orthrio) - Occupational Exposure Limits     OEL TWA (mg/m²)   1 mg/m² (tume)     OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Orthrio) - Occupational Exposure Limits     OEL TWA (mg/m²)   1 mg/m² (tume)     OEL STEL (mg/m²)   2 mg/m² (tume)     Canada (Orthrio) - Occupational Expos	ACGIH TWA (mg/m³)	10 mg/m³ (fume)		
Canada (Alberta) - Occupational Exposure Limits   OEL TYMA (mg/m²)	ACGIH STEL (mg/m³)	20 mg/m³ (fume)		
OEL STEL (mg/m²) 1 mg/m² (tume) Canada (Quebec) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume) Canada (British Columbia) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume) Canada (British Columbia) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume) Canada (Maribob) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Maribob) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)  Canada (New Brunswick) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (New Gunswick) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)  Canada (Newfoundland and Labrador) - Occupational Exposure Limits  OEL STEL (mg/m²) 1 mg/m² (tume)  Canada (New Socia) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Nova Socia) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)  Canada (Nunavut) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)  Canada (Nunavut) - Occupational Exposure Limits  OEL STEL (mg/m²) 2 mg/m² (tume)  Canada (Northwest Territories) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Northwest Territories) - Occupational Exposure Limits  OEL STEL (mg/m²) 2 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 1 mg/m² (tume)  Canada (Onario) - Occupational Exposure Limits  OEL TWA (mg/m²) 2 mg/m² (tume)	Zinc chloride (7646-85-7)			
OEL STEL (mg/m²)   2 mg/m² (fume)	Canada (Alberta) - Occupational Exposure Limits			
Canada (Guebec) - Occupational Exposure Limits	OEL TWA (mg/m³)	1 mg/m³ (fume)		
VEMP (mg/m²)         1 mg/m² (tume)           Canada (British Columbia) - Occupational Exposure Limits         OEL TWA (mg/m²)         1 mg/m² (tume)           OEL STEL (mg/m²)         2 mg/m² (tume)         Canada (Manitoba) - Occupational Exposure Limits           OEL TWA (mg/m²)         1 mg/m² (tume)         OEL TWA (mg/m²)         0 mg/m² (tume)           Canada (New Brunswick) - Occupational Exposure Limits         OEL TWA (mg/m²)         1 mg/m² (tume)           OEL TWA (mg/m²)         2 mg/m² (tume)         OEL TWA (mg/m²)         0 mg/m² (tume)           Canada (Newfoundland and Labrador) - Occupational Exposure Limits         OEL TWA (mg/m²)         1 mg/m² (tume)           CEL TWA (mg/m²)         2 mg/m² (tume)         OEL TWA (mg/m²)         0 mg/m² (tume)           Canada (Nova Scotia) - Occupational Exposure Limits         OEL TWA (mg/m²)         1 mg/m² (tume)           CEL TWA (mg/m²)         2 mg/m² (tume)         0 mg/m² (tume)           Canada (Nunavut) - Occupational Exposure Limits         OEL STEL (mg/m²)         2 mg/m² (tume)           Canada (Northwest Territories) - Occupational Exposure Limits         OEL STEL (mg/m²)         2 mg/m² (tume)           OEL STEL (mg/m²)         2 mg/m² (tume)         0 mg/m² (tume)           Canada (Ontario) - Occupational Exposure Limits         0 mg/m² (tume)         0 mg/m² (tume)           Canada (Prince E	OEL STEL (mg/m³)	2 mg/m³ (fume)		
Canada (British Columbia) - Occupational Exposure Limits	Canada (Quebec) - Occupational Exposure Limits			
DEL TWA (mg/m³)	VEMP (mg/m³)	1 mg/m³ (fume)		
OEL STEL (mg/m²)   2 mg/m² (tume)	Canada (British Columbia) - Occupational Exposure	e Limits		
Canada (Manitoba) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (fume)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (New Brunswick) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL TWA (mg/m³)         1 mg/m³ (fume)           Cell STEL (mg/m³)         2 mg/m³ (fume)           Canada (Newfoundland and Labrador) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m² (fume)           Canada (Nova Scotia) - Occupational Exposure Limits           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Nova Scotia) - Occupational Exposure Limits           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Nunavut) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m² (fume)           Canada (Northwest Territories) - Occupational Exposure Limits           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Northwest Territories) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (fume)           OEL STEL (mg/m³)         2 mg/m³ (fume)           OEL TWA (mg/m³)         1 mg/m³ (fume)           OEL TWA (mg/m³)         2 mg/m³ (fume)           Canada (Prince Edward Island) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (fume) <td>OEL TWA (mg/m³)</td> <td>1 mg/m³ (fume)</td>	OEL TWA (mg/m³)	1 mg/m³ (fume)		
DEL TWA (mg/m²)	OEL STEL (mg/m³)	2 mg/m³ (fume)		
OEL STEL (mg/m²)         2 mg/m² (tume)           Canada (New Brunswick) - Occupational Exposure Limits           OEL TWA (mg/m²)         1 mg/m³ (tume)           OEL STEL (mg/m²)         2 mg/m³ (tume)           Canada (Newfoundland and Labrador) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (tume)           OEL STEL (mg/m³)         2 mg/m³ (tume)           Canada (Nova Scotia) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (tume)           Canada (Nunavut) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (tume)           Canada (Nunavut) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (tume)           CE TWA (mg/m³)         2 mg/m³ (fume)           Cenada (Northwest Territories) - Occupational Exposure Limits           OEL STEL (mg/m³)         2 mg/m³ (tume)           Canada (Ontario) - Occupational Exposure Limits         OEL STEL (mg/m³)           OEL TWA (mg/m³)         1 mg/m³ (tume)           Canada (Prince Edward Island) - Occupational Exposure Limits         OEL STEL (mg/m³)           OEL STEL (mg/m³)         2 mg/m³ (tume)           Canada (Saskatchewan) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL TWA (mg/m³)         1 mg/m³ (tume)           OEL TWA (m	Canada (Manitoba) - Occupational Exposure Limits			
Canada (New Brunswick) - Occupational Exposure Limits  OEL TWA (mg/m³)	OEL TWA (mg/m³)	1 mg/m³ (fume)		
OEL TWA (mg/m³)         1 mg/m³ (fume)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Newfoundland and Labrador) - Occupational Exposure Limits           OEL TWA (mg/m³)         1 mg/m³ (fume)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Nova Scotia) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL STEL (mg/m³)         1 mg/m³ (fume)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Nunavut) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Northwest Territories) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Ontario) - Occupational Exposure Limits         OEL STEL (mg/m³)           OEL STEL (mg/m³)         1 mg/m³ (fume)           Canada (Prince Edward Island) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL TWA (mg/m³)         1 mg/m³ (fume)           Canada (Saskatchewan) - Occupational Exposure Limits         OEL STEL (mg/m³)           OEL STEL (mg/m³)         2 mg/m³ (fume)           Canada (Saskatchewan) - Occupational Exposure Limits         OEL TWA (mg/m³)           OEL TWA (mg/m³)         1 mg/m³ (fume)           Canada (Yukon) - Occupational Exposure Limi	OEL STEL (mg/m³)	2 mg/m³ (fume)		
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Canada (Prince Edward Island) - Occupational Exposure Limits  OEL TWA (mg/m³)	OEL TWA (mg/m³)	1 mg/m³ (fume)		
OEL TWA (mg/m³)  OEL STEL (mg/m³)  Canada (Saskatchewan) - Occupational Exposure Limits  OEL TWA (mg/m³)  1 mg/m³ (fume)  1 mg/m³ (fume)  OEL STEL (mg/m³)  2 mg/m³ (fume)  Canada (Yukon) - Occupational Exposure Limits	OEL STEL (mg/m³)	2 mg/m³ (fume)		
OEL STEL (mg/m³)  Canada (Saskatchewan) - Occupational Exposure Limits  OEL TWA (mg/m³)  1 mg/m³ (fume)  OEL STEL (mg/m³)  2 mg/m³ (fume)  Canada (Yukon) - Occupational Exposure Limits	Canada (Prince Edward Island) - Occupational Expo	osure Limits		
Canada (Saskatchewan) - Occupational Exposure Limits  OEL TWA (mg/m³)	OEL TWA (mg/m³)	1 mg/m³ (fume)		
OEL TWA (mg/m³)  1 mg/m³ (fume)  OEL STEL (mg/m³)  2 mg/m³ (fume)  Canada (Yukon) - Occupational Exposure Limits	OEL STEL (mg/m³)	2 mg/m³ (fume)		
OEL STEL (mg/m³)  2 mg/m³ (fume)  Canada (Yukon) - Occupational Exposure Limits	Canada (Saskatchewan) - Occupational Exposure L	imits		
Canada (Yukon) - Occupational Exposure Limits	OEL TWA (mg/m³)	1 mg/m³ (fume)		
	OEL STEL (mg/m³)	2 mg/m³ (fume)		
OEL TWA (mg/m³) 1 mg/m³ (fume)	Canada (Yukon) - Occupational Exposure Limits			
	OEL TWA (mg/m³)	1 mg/m³ (fume)		

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Ammonium chloride (12125-02-9)		
OEL STEL (mg/m³)	2 mg/m³ (fume)	
USA - ACGIH - Occupational Exposure Limits		
ACGIH TWA (mg/m³)	1 mg/m³ (fume)	
ACGIH STEL (mg/m³)	2 mg/m³ (fume)	
USA - OSHA - Occupational Exposure Limits		
OSHA PEL (TWA) (mg/m³)	1 mg/m³ (fume)	

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.

#### 8.3. Individual protection measures/Personal protective equipment

#### Hand protection:

Use neoprene or PVC rubber gloves, apron, boots; long sleeve shirt and pants. If considerable contact is likely, wear impervious (rubber) clothing or acid suit.

#### Eye protection:

Use chemical splash goggles.

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

## **SECTION 9: Physical and chemical properties**

## 9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Granular or fine particle
Color : White to off-white

Odor : Odorless.

Odor threshold : No data available

pH : 2.5 - 3.5 (2 lb/gal solution)

Relative evaporation rate (butylacetate=1) : No data available

Melting point : 204 - 232 °C (400-450°F)

Freezing point : No data available : Decomposes **Boiling point** Flash point No data available Self ignition temperature No data available Decomposition temperature : No data available Flammability (solid, gas) : No data available Vapor pressure No data available : No data available Relative vapor density at 20 °C Relative density : No data available : No data available Solubility Log Pow No data available Log Kow No data available Viscosity, kinematic : No data available Viscosity, dynamic No data available Explosive properties No data available Oxidizing properties : No data available

#### 9.2. Other information

No additional information available

## **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

Explosive limits

No additional information available

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: No data available

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#### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

#### 10.3. Possibility of hazardous reactions

Will not occur.

#### 10.4. Conditions to avoid

None.

#### 10.5. Incompatible materials

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

#### 10.6. Hazardous decomposition products

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.

#### **SECTION 11: Toxicological information**

#### 11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

Ammonium chloride (12125-02-9)		
LD50 oral rat	1650 mg/kg	
Zinc chloride (7646-85-7)		
LD50 oral rat	1100 mg/kg	
LC50 inhalation rat (mg/l)	≤ 1975 mg/m³ (Exposure time: 10 min)	
Ckin correction/irritation	· Causas savera akin hurna	

Skin corrosion/irritation : Causes severe skin burns.

Serious eye damage/irritation : Assumed to cause serious eye damage

Respiratory or skin sensitization : Not classified Germ cell mutagenicity : Not classified Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.

STOT-single exposure : May cause respiratory irritation.

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

STOT-repeated exposure : Not classified

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 pre-existing 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.

Aspiration hazard : Not classified

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## **SECTION 12: Ecological information**

12.1. Toxicity

: Very toxic to aquatic life with long lasting effects. Ecology - general

Hazardous to the aquatic environment, short-

term (acute)

: Very toxic to aquatic life.

Hazardous to the aquatic environment, long-

term (chronic)

: Very toxic to aquatic life with long lasting effects.

Ammonium chloride (12125-02-9)

209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static]) LC50 fish 1

Zinc chloride (7646-85-7)

16000 BCF fish 1

12.2. Persistence and degradability

No additional information available

12.3. **Bioaccumulative potential** 

Zinc chloride (7646-85-7)

16000 BCF fish 1

**Mobility in soil** 

No additional information available

Other adverse effects

: Not classified Ozone

## **SECTION 13: Disposal considerations**

**Disposal methods** 

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international

regulations.

## **SECTION 14: Transport information**

#### 14.1. **Basic shipping description**

In accordance with TDG

**Transportation of Dangerous Goods** 

UN-No. (TDG) : UN2331

Packing group : III - Minor Danger TDG Primary Hazard Classes : 8 - Class 8 - Corrosives

: UN2331 ZINC CHLORIDE, ANHYDROUS, 8, III Transport document description

Proper Shipping Name (Transportation of

Dangerous Goods)

: ZINC CHLORIDE, ANHYDROUS

Hazard labels (TDG) : 8 - Corrosive substances



Explosive Limit and Limited Quantity Index : 5 kg Excepted quantities (TDG) : E1 Passenger Carrying Road Vehicle or Passenger : 25 kg

Carrying Railway Vehicle Index

: Yes (IMDG only) Marine pollutant



## **Transport information/DOT**

## **Department of Transport**

DOT NA No : UN2331

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: 2331 UN-No.(DOT)

Packing group (DOT) : III - Minor Danger

: UN2331 Zinc chloride, anhydrous, mixture, 8, III Transport document description

Proper Shipping Name (DOT) : Zinc chloride, anhydrous, mixture

Contains Statement Field Selection (DOT)

Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Division (DOT) : 8

Hazard labels (DOT) : 8 - Corrosive



Dangerous for the environment : Yes Marine pollutant Yes



DOT Special Provisions (49 CFR 172.102)

IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).

IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.

T1 - 1.5 178.274(d)(2) Normal...... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : None : 213 DOT Packaging Non Bulk (49 CFR 173.xxx) DOT Packaging Bulk (49 CFR 173.xxx) : 240 DOT Quantity Limitations Passenger aircraft/rail : 25 kg (49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 100 kg

CFR 175.75)

**DOT Vessel Stowage Location** : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a

passenger vessel.

Other information : No supplementary information available.

#### **SECTION 15: Regulatory information**

## 15.1. Canada National regulations

## Ammonium chloride (12125-02-9)

Listed on the Canadian DSL (Domestic Substances List)

## Zinc chloride (7646-85-7)

Listed on the Canadian DSL (Domestic Substances List)

## 15.2. US Federal regulations

Ammonium chloride (12125-02-9)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		
CERCLA RQ	5000 lb	
Zinc chloride (7646-85-7)		
Zinc chloride (7646-85-7) Listed on the United States TSCA (Toxic Substant	nces Control Act) inventory	

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## 15.3. US State regulations

## Ammonium chloride (12125-02-9)

- U.S. Massachusetts Right To Know List
- U.S. Minnesota Hazardous Substance List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) List

## Zinc chloride (7646-85-7)

- U.S. Massachusetts Right To Know List
- U.S. Minnesota Hazardous Substance List
- U.S. New Jersey Right to Know Hazardous Substance List U.S. Pennsylvania RTK (Right to Know) List

## **SECTION 16: Other information**

#### Full text of H-phrases:

At 0111 prinadoo.	
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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