High Speed Flux Solution 50 Degree

Safety Data Sheet

SECTION 1: Identification

1.1. Identification

Product name : High Speed Flux Solution 50 Degree

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(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute Tox. 4 (Oral)	H302
Skin Corr. 1B	H314
Eye Dam. 1	H318

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) : H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Precautionary statements (GHS US) : P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
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/shower.
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.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P330 - Rinse mouth.
P363 - Wash contaminated clothing before reuse.
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.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
Zinc chloride	CAS-No.: 7646-85-7	45
Ammonium chloride	CAS-No.: 12125-02-9	2 – 10

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 (acute and delayed)

Symptoms/effects after inhalation : None anticipated during normal product use.

Symptoms/effects after skin contact : Causes severe burns.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : As appropriate for combustibles in area.

Unsuitable extinguishing media : None.

5.2. Specific hazards arising from the chemical

Fire hazard : Will not burn.

Explosion hazard : None known.

5.3. Special protective equipment and precautions for fire-fighters

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 : Isolate area. Keep unnecessary personnel away. 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.

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. 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

8.1. Control parameters

Ammonium chloride (12125-02-9)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH® TLV® TWA	10 mg/m³ (fume)
ACGIH® TLV® STEL	20 mg/m³ (fume)
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	10 mg/m³ (fume)
NIOSH REL STEL	20 mg/m³ (fume)

Zinc chloride (7646-85-7)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH® TLV® TWA	1 mg/m³ (fume)
ACGIH® TLV® STEL	2 mg/m³ (fume)
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA	1 mg/m³ (fume)
USA - IDLH - Occupational Exposure Limits	
IDLH	50 mg/m³ (fume)
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	1 mg/m³ (fume)
NIOSH REL STEL	2 mg/m³ (fume)

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

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 neoprene or PVC rubber clothing or acid suit.

Eye protection:

Use chemical splash goggles.

Skin and body protection:

Wear suitable working clothes

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	:	Liquid
Color	:	Colorless to light straw
Odor	:	Odorless
Odor threshold	:	No data available
pH	:	2.0 – 4.0
Melting point	:	< -46 °C (<-50°F)
Freezing point	:	No data available
Boiling point	:	> 100 °C (>212 F)
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	1.52 – 1.53
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available

Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	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

No additional information available

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

After drying, may release zinc oxide fumes, zinc chloride fumes, ammonium chloride and ammonia and hydrogen chloride gases at high temperatures.

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

High Speed Flux Solution 50 Degree	
ATE US (oral)	742.765 mg/kg body weight

Ammonium chloride (12125-02-9)	
LD50 oral rat	1650 mg/kg
ATE US (oral)	1650 mg/kg body weight

Zinc chloride (7646-85-7)	
LD50 oral rat	1100 mg/kg
LC50 Inhalation - Rat	≤ 1975 mg/m³ (Exposure time: 10 min)
ATE US (oral)	350 mg/kg

Skin corrosion/irritation : Causes severe skin burns.

Serious eye damage/irritation	:	Causes serious eye damage.
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ammonium chloride (12125-02-9)	
LC50 - Fish [1]	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

12.2. Persistence and degradability

High Speed Flux Solution 50 Degree	
Persistence and degradability	Rapidly degradable

Ammonium chloride (12125-02-9)	
Persistence and degradability	Rapidly degradable

Zinc chloride (7646-85-7)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

Zinc chloride (7646-85-7)	
BCF - Fish [1]	16000

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

UN-No. (DOT)	:	UN1840
UN-No. (TDG)	:	UN1840
UN-No. (IMDG)	:	1840
UN-No. (IATA)	:	1840

14.2. UN proper shipping name

Proper Shipping Name (DOT)	:	Zinc chloride, solution
Proper Shipping Name (TDG)	:	ZINC CHLORIDE SOLUTION
Proper Shipping Name (IMDG)	:	ZINC CHLORIDE SOLUTION
Proper Shipping Name (IATA)	:	Zinc chloride solution

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 8

Hazard labels (DOT) : 8

TDG

Transport hazard class(es) (TDG) : 8

Hazard labels (TDG) : 8

IMDG

Transport hazard class(es) (IMDG) : 8

Hazard labels (IMDG) : 8

IATA

Transport hazard class(es) (IATA) : 8

Hazard labels (IATA) : 8

14.4. Packing group

Packing group (DOT)	:	III
Packing group (TDG)	:	III
Packing group (IMDG)	:	III
Packing group (IATA)	:	III

14.5. Environmental hazards

Marine pollutant : Yes (IMDG only)

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No. (DOT) : UN1840

DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154

DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

DOT Vessel Stowage Other : 53 - Stow ‘‘separated from’’ alkaline compounds,58 - Stow ‘‘separated from’’ cyanides

TDG

UN-No. (TDG) : UN1840

Explosive Limit and Limited Quantity Index : 5 L

Excepted quantities (TDG) : E1

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 5 L

Emergency Response Guide (ERG) Number : 154

IMDG

Special provision (IMDG) : 223

Limited quantities (IMDG) : 5 L

Excepted quantities (IMDG) : E1

Packing instructions (IMDG) : P001, LP01

IBC packing instructions (IMDG) : IBC03

Tank instructions (IMDG) : T4

Tank special provisions (IMDG) : TP2

EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE

EmS-No. (Spillage) : S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES

Stowage category (IMDG) : A

Segregation (IMDG) : SGG1, SGG7, SG36, SG49

Properties and observations (IMDG) : Colorless liquid. Mildly corrosive to most metals. Causes burns to skin, eyes and mucous membranes.

IATA

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y841
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 852
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 856
CAO max net quantity (IATA) : 60L
Special provision (IATA) : A3, A803
ERG code (IATA) : 8L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Ammonium chloride	12125-02-9	Present	Active	
Zinc chloride	7646-85-7	Present	Active	

Ammonium chloride (12125-02-9)	
CERCLA RQ	5000 lb

Zinc chloride (7646-85-7)	
CERCLA RQ	1000 lb

15.2. US State regulations

Component	State or local 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

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.