SAFETY DATA SHEET

Date of update: 25.05.2020 Version: 2.0/EN

[In accordance with the criteria of Regulation No 1907/2006 (REACH) as amended

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Zinc-ammonium flux

Types of product:
700 g/l, 60/40 - $ZnCl_2/NH_4Cl$
700 g/l, 70/30 - $ZnCl_2/NH_4Cl$
700 g/l, 80/20 - $ZnCl_2/NH_4Cl$
700 g/l, 60/40 - $ZnCl_2/NH_4Cl$ pH+
700 g/l, 80/20 - $ZnCl_2/NH_4Cl$ pH+

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: flux.

Uses advises against: not determined.

1.3 Details of the supplier of the safety data sheet

Supplier Recynk Sp. z o.o.

Address: 59-524 Pielgrzymka, Pielgrzymka 150a, Poland

Telephone/Fax: +48 76 877 51 09

E-mail address for a competent person responsible for sds: biuro@theta-doradztwo.pl

1.4 Emergency telephone number

112

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Acute Tox. 4 H302	Harmful if swallowed.
Skin Corr. 1B H314	Causes severe skin burns and eye damage.
STOT SE 3 H335	May cause respiratory irritation.
Aquatic Acute 1 H400	Very toxic to aquatic life.
Aquatic Chronic 1 H410	Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Hazard pictograms and signal words

DANGER

Names of substances mentioned on label

Contains: zinc chloride; ammonium chloride.

Hazard statements

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

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

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/doctor.

P501 Dispose of contents/container to a properly labeled containers emptied by an authorized company in accordance with national regulations.

2.3 Other hazards

Product does not contain ingredients, which meet criteria for PBT or vPvB in accordance with Annex XIII of REACH Regulation.

Section 3: Composition/information on ingredients

3.2 Mixtures

CAS number: 7646-85-7 EC number: 231-592-0 Index number: 030-003-00-2 Registration number: 01-2119472431-44-XXXX	zinc chloride Acute Tox. 4 H302, Skin Corr. 1B H314, Aquatic Acute 1 H400, Aquatic Chronic 1 H410 (M=1) specific concentration limit: STOT SE 3 H335 C ≥ 5%	40-80 %
CAS number: 12125-02-9 EC number: 235-186-4 Index number: 017-014-00-8 Registration number: 01-2119487950-27-XXXX	ammonium chloride) Acute Tox. 4 H302, Eye Irrit. 2 H319	20-60 %
CAS number: 1314-13-2 EC number: 215-222-5 Index number: 030-013-00-7 Registration number: substance exempted from registration according to article 2 p. 7d of REACH	zinc oxide Aquatic Acute 1 H400, Aquatic Chronic 1 H410 (M=1)	0-20%

Full text of each relevant H phrase is given in section 16 of SDS.

Section 4: First aid measures

4.1 Description of first aid measures

Skin contact: take off contaminated clothing. Contaminated parts of the skin wash with plenty of water and soap. Apply a sterile dressing. Consult a doctor immediately.

Eye contact: contact an ophthalmologist immediately. Rinse contaminated eyes thoroughly with water for 10-15 minutes. Avoid strong stream of water – risk of damage of the cornea. Protect non-irritated eye, remove contact lenses. Apply a sterile dressing.

Ingestion: do not induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Seek medical advice immediately, show label or container.

Inhalation: remove the victim to fresh air. Keep warm and calm. Consult a doctor, if disturbing symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed

Eye contact: irritation, redness, tearing, burning sensation, burns, the risk of loss of sight.

Skin contact: irritation, redness, burns, necrosis.

Ingestion: burns of mouth, throat, esophagus, risk of perforation of stomach, burns of esophagus.

Inhalation: irritation of respiratory system.

4.3 Indication of any immediate medical attention and special treatment needed

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: dry powder, carbon dioxide, water fog. Adjust firefighting measures to the surrounding burning materials

Unsuitable extinguishing media: do not use strong stream of water.

5.2 Special hazards arising from the substance or mixture

During combustion harmful compounds may be produced, e.g. hydrogen halide. Do not inhale combustion products, it may cause health risk.

5.3 Advice for firefighters

The product is non-flammable. Personal protection typical in case of fire. Do not stay in the fire zone without self-contained breathing apparatus and protective clothing resistant to chemicals. Do not let extinguishing media to reach drainage system. Collect used extinguishing agents.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Limit the access for the outsiders into the breakdown area, until the suitable cleaning operations are completed. Ensure that effects of the breakdown are removed only by qualified personnel. Avoid eyes and skin contact. Avoid vapours inhalation. Ensure adequate ventilation. Use personal protective clothing.

6.2 Environmental precautions

In case of release of large amounts of the product, it is necessary to take appropriate steps to prevent it from spreading into the environment. Notify relevant emergency services.

6.3 Methods and material for containment and cleaning up

Collect spilled material using liquid binding, non-flammable materials (eg. sand, diatomaceus earth) and place it in correctly labelled containers. Treat collected material as waste. Clean the contaminated area.

6.4 Reference to other sections

Appropriate conduct with waste product – section 13. Personal protection equipment – section 8.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good occupational hygiene and safety practices. Avoid eyes and skin contact. Avoid vapours inhalation. Before break and after work wash hands. Ensure adequate ventilation. Use personal protective measures.

7.2 Conditions for safe storage, including any incompatibilities

Store the product in a dry, cool place in original packaging. Do not store together with food, animal feed and drinking water. Do not store with incompatible materials (see subsection 10.5).

7.3 Specific end use(s)

No information about uses other than mentioned in subsection 1.2.

Section 8: Exposure controls/personal protection

8.1 Control parameters

The product does not contain any components with occupational exposure limit values at the working place in the Community. (Legal Basis: Commission Directive 2006/15/EC, 2000/39/EC, 2009/161/EC, 2017/164/EU, 2019/1831/UE).
Please check any national occupational exposure limit values in your country.

DNEL-values for components

DNEL	ammonium chloride [CAS 12125-02-9]	
	worker	consumer
dermal, long-term exposition, systemic effects	128,9 mg/kg b.w./day	55,2 mg/kg b.w./day
oral, long-term exposition, systemic effects	—	55,2 mg/kg b.w./day
inhalation, long-term exposition, systemic effects	43,97 mg/m³	9,4 mg/m³

PNEC-values for components

PNEC	ammonium chloride [CAS 12125-02-9]
freshwater	0,25 mg/l
marine water	0,025 mg/l
freshwater – sediment	0,9 mg/kg dry weight
marine water – sediment	0,09 mg/kg dry weight
STP	13,1 mg/l

8.2 Exposure controls

Observe good occupational hygiene and safety practices. Do not eat, drink or smoke when using the product. Avoid eyes and skin contamination. Avoid vapours inhalation. Ensure adequate general and/or local ventilation at the workplace. Safety showers and eyewashes should be installed in the vicinity of a workplace.

Hand and body protection

Wear protective gloves, if necessary. Kind, thickness and breakthrough of gloves select at the workplace individually. Gloves made of rubber are recommended. Wear protective clothing.

The material that the gloves are made of must be impenetrable and resistant to the product's effects. The selection of material must be performed with consideration of breakthrough time, penetration speed and degradation. Moreover, the selection of proper gloves depends not only on the material, but also on other quality features and changes depending on the manufacturer. The producer should provide detailed information regarding the exact breakthrough time. This information should be followed.

Eye protection

Tightly fitting safety goggles.

Respiratory protection

In case of the formation of vapours and aerosols, use absorbing equipment or absorbing and filtering equipment with a suitable protection class (class 1/ protection against vapours with a concentration in the air volume not exceeding 0.1 %, class 2/ protection against vapours with a concentration in the air not exceeding 0.5 %, class 3/ protect against vapours at concentrations in the air volume to 1 %). In cases where the oxygen concentration is ≤ 19 % and / or maximum concentration of toxic substances in the air is ≥ 1.0 % by volume, isolating equipment should be used.

Personal protective equipment must meet requirements of regulation 2016/425/EU. Employer is obliged to ensure equipment adequate to activities carried out, with quality demands, cleaning and maintenance.

Thermal hazard

Not applicable.

Environmental exposure controls

Avoid environment contamination, do not empty into drains. Possible emissions from the ventilation systems and processing equipment should be controlled in order to determinate their compatibility with environmental protection regulations.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

physical state:	liquid
colour:	yellowish
odour:	odourless
odour threshold:	not applicable
pH:	2,5-5
melting point/freezing point:	not determined
initial boiling point and boiling range:	not determined
flash point:	not applicable
evaporation rate:	not determined
flammability (solid, gas):	not applicable
upper/lower flammability or explosive limits:	not applicable
vapour pressure (20°C):	1 hPa
vapour density:	not applicable
density:	1,2-1,4 g/cm^3
solubility(ies):	not determined
partition coefficient: n-octanol/water: (log Pow):	not applicable
auto-ignition temperature:	not applicable
decomposition temperature:	> 330 °C
explosive properties:	not display
oxidising properties:	not display
viscosity:	not applicable, product is solid

9.2 Other information

No additional test results.

Section 10: Stability and reactivity

10.1 Reactivity

The product is reactive. Does not undergo hazardous polymerization. See also subsections 10.3 and 10.5

10.2 Chemical stability

The product is stable under normal conditions of handling and storage.

10.3 Possibility of hazardous reactions

Hazardous reactions are not known.

10.4 Conditions to avoid

High temperature.

10.5 Incompatible materials

Strong oxidizers, zinc pulver, potassium, water.

10.6 Hazardous decomposition products

Hydrogen chloride, ammonium.

Section 11: Toxicological information

11.1 Information on toxicological effects

Toxicity of components

zinc chloride [CAS 7646-85-7]

LD_{50} (oral, rat) 350 mg/kg

Source: Food Research. Vol. 7, Pg. 313, 1942

ammonium chloride [CAS 12125-02-9]

LD_{50} (oral, rat) 1 650 mg/kg

zinc oxide [CAS 1314-13-2]

LD_{50} (oral, rat): > 2 000 mg/kg

LD_{50} (oral, mouse): > 5 000 mg/kg

LC_{50} (inhalation, rat): > 5,7 mg/l/4h

LD_{50} (skin, rabbit): > 2 000 mg/kg

Toxicity of mixture

Acute toxicity

ATE_{mix} (oral)* 511 mg/kg

*calculation based on test results

Harmful if swallowed.

Skin corrosion/irritation

Causes severe skin burns.

Serious eye damage/irritation

Causes eye damage.

Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause respiratory irritation.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Section 12: Ecological information

12.1 Toxicity

Toxicity of components

zinc oxide [CAS 1314-13-2]

Toxicity to daphnia EC_{50}	> 1 000 mg/l/48h (*Daphnia magna*)
Toxicity to algae EC_{50}	0,17 mg/l/72h (*Desmodesmus subspicatus*)
Toxicity to fish LC_{50}	1,1 mg/l/96h (*Oncorhynchus mykiss*)

M factor = 1

zinc chloride [CAS 7646-85-7]

toxicity to crustaceans EC_{50} 1,97 mg/l/48h

Source: Muyssen, B.T.A., and C.R. Janssen 2001. Multigeneration Zinc Acclimation and Tolerance in Daphnia magna: Implications for Water-Quality Guidelines and Ecological Risk Assessment. Environ.Toxicol.Chem. 20(9):2053-2060; Muyssen, B.T.A., C.R. Janssen, and B.T.A. Bossuyt 2002. Tolerance and Acclimation to Zinc of Field-Collected Daphnia magna Populations. Aquat.Toxicol. 56(2):69-79

toxicity to fish LC_{50} 3,36 mg/l/96h

Source: Buhl, K.J., and S.J. Hamilton 1996. Toxicity of Inorganic Contaminants, Individually and in Environmental Mixtures, to Three Endangered Fishes (Colorado Squawfish, Bonytail, and Razorback Sucker). Arch.Environ.Contam.Toxicol. 30(1):84-92; Hedtke, J.L., E. Robinson-Wilson, and L.J. Weber 1982. Influence of Body Size and Developmental Stage of Coho Salmon (Oncorhynchus kisutch) on Lethality of Several Toxicants. Fundam.Appl.Toxicol. 2:67-72

Toxicity of mixture

Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

zinc oxide [CAS 1314-13-2]

Not determined for inorganic substances.

12.3 Bioaccumulative potential

zinc oxide [CAS 1314-13-2]

The substance does not show a bioaccumulative potential.

12.4 Mobility in soil

Mobility of the mixture depends on the hydrophilic and hydrophobic properties and biotic and abiotic conditions of soil, including its structure, climatic conditions, seasons and soil organisms.

12.5 Results of PBT and vPvB assessment

Product does not contain ingredients, which meet criteria for PBT or vPvB in accordance with Annex XIII of REACH Regulation.

12.6 Other adverse effects

This product has no influence on the global warming or the ozone layer depletion.

Section 13: Disposal considerations

13.1 Waste treatment methods

Disposal methods for the mixture: dispose of with household waste. Do not empty into drains. Disposal in accordance with the local legislation. Waste code should be assigned in place of formation.

Disposal methods for used packing: reuse/recycle/eliminate empty containers in accordance with the local legislation.

Legal basis: Directive 2008/98/EC as amended, 94/62/EC as amended.

Section 14: Transport information

14.1 UN number

UN 3264

14.2 UN proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ZINC CHLORIDE, ZINC OXIDE)

14.3 Transport hazard class(es)

8

14.4 Packing group

III

14.5 Environmental hazards

Product is classified as dangerous for the environment according to transport regulations.

14.6 Special precautions for user

Use personal protective equipment specified in section 8.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance) as amended.

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste as amended.

Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC.

Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC.

Commission Directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

Commission Directive 2017/164/EU of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.

Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

15.2 Chemical safety assessment

The chemical safety assessment is not carried out.

Section 16: Other information

Full text of indicated H phrases mentioned in section 3

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Abbreviations and acronyms

PBT	Persistent, Bioaccumulative and Toxic substance
vPvB	very Persistent, very Bioaccumulative substance
Acute Tox. 4	Acute toxicity, category 4
Aquatic Acute 1	Hazardous to the aquatic environment, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, category 1
Eye Irrit. 2	Serious eye damage/eye irritation, category 2
Skin Corr. 1B	Skin corrosion/irritation, category 1B
STOT SE 3	Specific target organ toxicity — single exposure, category 3

Trainings

Before commencing work with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo a proper workplace training. People associated with the transport of hazardous materials according to ADR should be adequately trained to perform their duties (general training, bench and safety).

Key literature references and data sources

This SDS was prepared on the basis of producer's data as well as our knowledge and experience, taking into account current legislation.

Classification and procedures used to classify the mixture in accordance with Reg. EC 1272/2008 as amended

Health hazards – calculation method
Environmental hazards – calculation method

Additional information

Date of update:	20.07.2018
Version:	2.0/EN
Changes:	sections 1, 3, 8, 11, 12, 14, 15, 16.
Composed by:	mgr inż. Kinga Wasilewska (on the basis of producer's data).
Safety Data Sheet made by:	„THETA" Technical Consulting

This SDS annuls and replaces all previous versions.

The information above is based on a current available data concerning the product, but also on the experience and knowledge in this field of the producer. They are neither a quality description of the product nor a guarantee of particular features. They are to be treated as aid to safety in transport, storage and usage of the product. That does not free the user from the responsibility of improper usage of the information above and also of improper compliance with the law norms in the field.