

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

1 Identification

Trade name: NP545 Lead-free Solder Paste
Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Details of the supplier of the safety data sheet
Manufacturer/Supplier:

Kester Inc.

800 West Thorndale Avenue

Itasca, IL 60143 USA

Tel (630) 616-4000

Tel International 00 1 630 616-4000

ITW Specialty Materials (Suzhou) Co., Ltd.

Heng Qiao Road

Wujiang Economic Development Zone

Suzhou, Jiangsu 215200 China

Tel +86 512 82060808

Kester GmbH

Ganghofer Strasse 45

D-82216 Gernlinden Germany

Tel +49 (0) 8142 4785 0

Information department: Product Compliance: EHS_Kester@kester.com

Emergency telephone number:

CHEMTREC 24-Hour Emergency Response Telephone Number : (800) 424-9300

CHEMTREC 24-Hour Emergency Response (Outside US & Canada) Telephone Number : (703) 527-3887

2 Hazard(s) identification

Classification of the substance or mixture


Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Aquatic Acute 3 H402 Harmful to aquatic life.

Label elements
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms


GHS08

(Contd. on page 2)

US

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste

(Contd. of page 1)

Signal word Danger

Hazard-determining components of labeling:

Modified Rosin

Ethoxylated Amines

Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H402 Harmful to aquatic life.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P264 Wash 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+P310 If swallowed: Immediately call a poison center/doctor.

P302+P352 If on skin: Wash with plenty of soap and 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.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Description: Mixture of the substances listed below with nonhazardous additions.

CAS No.	Description	% Range
CAS: 7440-31-5	TIN (Sn)	85-100%
CAS: 9003-13-8	Tripropylene Glycol n-Butyl Ether	⚠ Skin Irrit. 2, H315 3-5%
Trade Secret	Modified Rosin	⚠ Skin Sens. 1, H317 1-3%
CAS: 7440-22-4	SILVER (Ag)	1-3%
Trade Secret	Proprietary Acid	⚠ Eye Irrit. 2A, H319 1-3%
Trade Secret	Ethoxylated Amines	⚠ Resp. Sens. 1, H334 Aquatic Acute 3, H402 1-3%

(Contd. on page 3)

US

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste
SVHC

(Contd. of page 2)

This product does not contain any Substance of Very High Concern (SVHC) on the European Chemicals Agency (ECHA) candidate list.

4 First-aid measures

Description of first aid measures

General information: Follow general first aid procedures.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact: Rinse opened eye for several minutes under running water.

After swallowing: Seek immediate medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture In case of fire, the following can be released:

Advice for firefighters

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation

Environmental precautions: Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up: Dispose contaminated material as waste according to item 13.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals
PAC-1:

CAS: 7440-31-5	TIN (Sn)	6 mg/m ³
CAS: 9003-13-8	Tripropylene Glycol n-Butyl Ether	27 mg/m ³
CAS: 7440-22-4	SILVER (Ag)	0.3 mg/m ³
CAS: 7440-50-8	COPPER (Cu)	3 mg/m ³

PAC-2:

CAS: 7440-31-5	TIN (Sn)	67 mg/m ³
CAS: 9003-13-8	Tripropylene Glycol n-Butyl Ether	300 mg/m ³
CAS: 7440-22-4	SILVER (Ag)	170 mg/m ³
CAS: 7440-50-8	COPPER (Cu)	33 mg/m ³

PAC-3:

CAS: 7440-31-5	TIN (Sn)	400 mg/m ³
CAS: 9003-13-8	Tripropylene Glycol n-Butyl Ether	1,800 mg/m ³
CAS: 7440-22-4	SILVER (Ag)	990 mg/m ³

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste

CAS: 7440-50-8 COPPER (Cu)

(Contd. of page 3)

200 mg/m³

7 Handling and storage

Handling:

Precautions for safe handling Prevent formation of dust.

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: None.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

CAS: 7440-31-5 TIN (Sn)

PEL Long-term value: 2 mg/m³
metal

REL Long-term value: 2 mg/m³

TLV Long-term value: 2 mg/m³
metal

CAS: 7440-22-4 SILVER (Ag)

PEL Long-term value: 0.01 mg/m³

REL Long-term value: 0.01 mg/m³

TLV Long-term value: 0.1 mg/m³
metal: dust and fume

Additional information:

PEL = Permissible Exposure Limit (OSHA)

TLV= Threshold Limit Value (ACGIH)

OSHA= Occupational Safety and Health Administration

ACGIH= American Conference of Governmental Industrial Hygienists

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Breathing equipment:

Not necessary if room is well-ventilated.

Use suitable respiratory protective device in case of insufficient ventilation.

(Contd. on page 5)

US

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste
Protection of hands:

(Contd. of page 4)



Protective gloves

Material of gloves:

Nitrile rubber, NBR

Natural rubber, NR

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:


Safety glasses

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:

Form:	Paste
Color:	Silver grey
Odor:	Mild

pH-value:	Not applicable.
------------------	-----------------

Change in condition

Melting point/Melting range:	Undetermined.
-------------------------------------	---------------

Boiling point/Boiling range:	>100 °C (>212 °F)
-------------------------------------	-------------------

Flash point:	Not applicable.
---------------------	-----------------

Flammability (solid, gaseous):	Not determined.
---------------------------------------	-----------------

Auto igniting:	Product is not selfigniting.
-----------------------	------------------------------

Danger of explosion:	Product does not present an explosion hazard.
-----------------------------	---

Vapor pressure:	Not applicable.
------------------------	-----------------

Density:	Not determined.
-----------------	-----------------

Vapor density	Not applicable.
----------------------	-----------------

Solubility in / Miscibility with Water:	Insoluble.
--	------------

Solvent content:

Solids content:	100.0 %
------------------------	---------

10 Stability and reactivity

Reactivity No further relevant information available.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste

(Contd. of page 5)

Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions No dangerous reactions known.

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

Information on toxicological effects
Acute toxicity:
LD/LC50 values that are relevant for classification:
Modified Rosin

Oral	LD50	>4,000 mg/kg (Rat)
Dermal	LD50	>2,500 mg/kg (rabbit)

Primary irritant effect:
on the skin: No irritant effect.

on the eye: Irritating effect.

Sensitization:

Sensitization possible through inhalation.

Sensitization possible through skin contact.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

Carcinogenic categories
IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.

Additional ecological information:
General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment
PBT: Not applicable.

vPvB: Not applicable.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste

(Contd. of page 6)

13 Disposal considerations

Waste treatment methods
Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number

DOT, ADR, ADN, IMDG, IATA

Not applicable

UN proper shipping name

DOT, ADR, ADN, IMDG, IATA

Not applicable

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class

Not applicable

Packing group

DOT, IMDG, IATA

Not applicable

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL73/78
and the IBC Code

Not applicable.

UN "Model Regulation":

Not applicable

15 Regulatory information

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

All ingredients are listed on the following Government Inventories:

China: Inventory of Existing Chemical Substances in China (IECSC)

Korea: Korea Existing Chemicals List (ECL)

Europe: European Inventory of Existing Commercial Chemical Substances (EINECS)

Japan: Inventory of Existing and New Chemical Substances (ENCS)

Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)

USA: TSCA (Toxic Substances Control Act) TSCA Inventory of Chemical Substances

USA The following information relates to product regulation specific to the USA.

SARA (Superfund Amendments and Reauthorization Act)
Section 355 (extremely hazardous substances):

None of the ingredient is listed.

Section 313 (Specific toxic chemical listings):

CAS: 7440-22-4 SILVER (Ag)

CAS: 7440-50-8 COPPER (Cu)

California Proposition 65
Chemicals known to cause cancer:

None of the ingredients is listed.

(Contd. on page 8)

us

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste

(Contd. of page 7)

Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

Carcinogenic categories
EPA (Environmental Protection Agency)

CAS: 7440-22-4 SILVER (Ag)

D

CAS: 7440-50-8 COPPER (Cu)

D

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

CANADA:

Workplace Hazardous Materials Identification (WHMIS):

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the Safety Data Sheet (SDS) contains all of the information required by the CPR.

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms


GHS08

Signal word Danger

Hazard-determining components of labeling:

Modified Rosin

Ethoxylated Amines

Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H402 Harmful to aquatic life.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P264 Wash 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+P310 If swallowed: Immediately call a poison center/doctor.

P302+P352 If on skin: Wash with plenty of soap and 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.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

(Contd. on page 9)

US

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 05/23/2018

Version number 3

Reviewed on 04/17/2018

Trade name: NP545 Lead-free Solder Paste

(Contd. of page 8)

Department issuing Safety Data Sheet (SDS): Product Compliance / EHS Department**Contact:** EHS_Kester@kester.com**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

*** Data compared to the previous version altered.**