NEUHAUS Elektronik GmbH

RFI shielding specialist
for conductive adhesives and gaskets

Safety Data Sheet (1907/2006/EC)

Vers: 3.2 (EN)
Material: Neusil K 682

Date of revision 15.06.2015

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

1.1 Product identifier electrically conductive 1-c paste (base silicone), filler: silver coated copper (Ag/Cu)
Commercial product name: **NEUSIL K682**

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

Industrial.
Use of substance / preparation:
electrically conductive adhesive.

1.3 Details of the supplier of the safety data sheet

Manufacturer/distributor:	NEUHAUS ELEKTRONIK GmbH
Street/POB-No.:	Drontheimer Str. 21
State/postal code/city:	D 13359 Berlin
Telephone:	+49 (0)30 497 695-0
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Information about the Safety Data Sheet:
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1.4 Emergency telephone number

Emergency Information: **Mr. Alexander Neuhaus +49 (0)30-497 695-0**
Emergency Information (internat.): **Mr. Alexander Neuhaus +49 (0)179 451 1183**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Class	Category	Route of exposure	H-Code
Specific target organ toxicity (repeateed exposure)	Category 2		H373
Specific target organ toxicity (single exposure)	Category 3 (narcotic effects)		H336
Reproductive toxicity	Category 2 (developmental		H361d
	toxicity)		
Serious eye damage / eye irritation	Category 1		H318
Skin corrosion/irritation	Category 2		H315
Flammable liquids	Category 2		H225

Classification (67/548/EEC, 1999/45/EC):

Description
Highly flammable.
Irritating to skin.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Possible risk of harm to the unborn child.
Vapours may cause drowsiness and dizziness.

2.2 Label elements

Labelling (GHS):

Pictogram(s):

Signal Word: Danger

H-code	Hazard Statements
H225	Highly flammableliguid and vapour
H315	Causes skin irritation.
H318	Causes serious eye damage
H336	May cause drowsiness and dizziness

H361d	Suspected of damaging the unborn child
H373	May cause damage to organs troough prolonged or repeated exposure

P-Code	Precautionary Statesments
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take precautionary meqasures against static discharge.
P233	Kepp container tightly closed.
P280	Wear protective gloves/protective clothing/eye protection.
P271	Use only outdoors or in awell-ventilated area.
P305+P351+P338	IF IN EYES: Rinde cautiously with water for several minutes. Remove contact lenses, if present and
	easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P302+P352	IF OF SKIN: Wash with plenty of water/soap.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P370+P378	In case of fire: use water spray, extinguishing powder, foam or carbon dioxide to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose contents/container to waste disposal.

2.3 Other hazards

No data are available.

SECTION 3: Composition/information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

3.2.1 Chemical characterization (preparation)

Polydimethylsiloxane + auxiliary + Aminosilane + solvent

3.2.2 Hazardous ingredients

Type	CAS No.	EC-No. REACH no.	Material	Content%	Classification*	Comment
INHA	108-88-3	203-625-9 01-2119471310-15	Toluene	< 5	F, Xn; R11-38-48/20 63-65-67 Repr. 2; H361d STOT RE 2; H373 STOT SE 3; H336 Skin Irrit. 2; H315 Asp. Tox. 1; H304 Flam. Liq. 2; H225	[1]
INHA	16411-33-9	240-462-2	Methyl-tris-n-butylaminosilane	> 3 -- < 5	C; R10-22-34 Acute Tox. 4 oral; H302 SkinCorr. 1B; H314 EyeDam. 1; H318 Flam. Liq. 2;	[1]
VERU	556-67-2	209-136-7	Octamethylcy-clotetrasiloxane	< 0,2	Xn; R53-62 Flam. Liq 3; H226 Repr. 2;H361f Aquatic Chronic 4 H413	[1]

Type: INHA: ingredient, VERU impurity
REACH regitered substances may be included as impurities.These do not necessarily require identified uses and exposure scenarios in safety data sheet.

[1] = Hazardous or environmentally harmful substance; [2] = substance with a Community workplace exposure limit; [3] = PBT substance; [4] = vPvB substance; [5] = SVHC-candidate (substance of very high concern).

*Classification codes are explained in section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:
Take persons to a safe place. Observe self-protection for first aid. Seek medical advice in the event of contact with this substance. Pregnant women exposed to this substance must seek medical advice. Vapours may cause dizziness. Do not leave affected individuals unattended.

After inhalation:
Keep the patient calm. Protect against loss of body heat. Seek medical advice and clearly identify substance.

After contact with the skin:
Remove contaminated or soaked clothing. Wash off with plenty of water or water and soap immediately for 10-15 minutes. In serious cases, use emergency shower immediately. Seek medical advice and clearly identify substance.

After contact with the eyes:
Rinse immediately with plenty of water for 10-15 minutes. Keep eyelids well open to rinse the whole eye surface and eyelids with water. Seek medical advice and clearly identify substance.

After swallowing:
If conscious, give several small portions of water to drink. Do not induce vomiting. Seek medical advice and clearly identify substance.

4.2 Most important Symptoms and effects, both acute and delayed
Any relevant Information can be found in other parts of this section.

4.3 Indication of any immediate medical attention and Special treatment needed
After inhalation: treat as early as possible using cortisone spray. Product contains reproductive toxins (may cause harm to the unborn child and /or impairs male or female reproductive function). After exposure, it is recommended that you seek specialist medical advice.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
water spray , extinguishing powder, foam , carbon dioxide .

Extinguishing media which must not be used for safety reasons:
water jet.

5.2 Special hazards arising from the substance or mixture

Heavy soot formation during combustion. Hazardous combustion products: nitrogen oxides .

5.3 Advice for firefighters

Special protective equipment for fire fighting:
Use respiratory protection independent of recirculated air.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment (see section 8). Do not inhale gases/vapours/aerosols. Avoid contact with eyes and skin. Keep unprotected persons away.

6.2 Environmental precautions

Prevent material from entering surface waters, drains or sewers and soil. Contain any fluid that runs out using suitable material (e.g. earth). Retain contaminated water/extinguishing water. Dispose of in prescribed marked Containers.

6.3 Methods and material for Containment and cleaning up

Do not flush away with water. Take up mechanically and dispose of according to local/state/federal regulations. For small amounts: Absorb with a liquid binding material such as diatomaceous earth and dispose of according to local/state/federal regulations. Contain larger amounts and pump up into suitable Containers. Exhaust vapours.

Further Information:

6.4 Reference to other sections

Relevant Information in other sections have to be considered. This applies in particular for Information given on personal protective equipment (section 8) and on disposal (section 13).

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling:
Ensure adequate Ventilation. Spilled substance increases risk of slipping.

Precautions against fire and explosion:
Cool endangered Containers with water. Flammable vapors may accumulate and form explosive mixtures with air in Containers, process vessels, including partial, empty and uncleaned Containers and vessels, or other enclosed Spaces.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for storage rooms and vessels:
none known .

Advice for storage of incompatible materials:
not applicable .

Further information for storage:
Store in a dry and cool place. Keep Container tightly closed. Protect against moisture. Protect against sun.

7.3 Specific end use(s)

No data are available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Maximum airborne concentrations at the workplace:

CAS-No.	Material	Type	mg/m³	ppm	Dust fract.	Fibre/m³
108-88-3	Toluene	OEL	191,0	50,0		
109-73-9	n-Butylamine	OEL				

8.2 Exposure controls

8.2.1 Exposure in the work place limited and controlled

General protection and hygiene measures:
Avoid contact with eyes and skin. Do not inhale gases/vapours/aerosols. Keep working clothes separately. Do not eat, drink or smoke when handling. Avoid exposure of the substance to pregnant women.

Personal protection equipment:

Respiratory protection

gas mask filter ABEK. In case of long or strong exposure: positive pressure self contained breathing apparatus.

Hand protection

protective gloves made of fluorinated rubber. Gloves suitable for up to 60 minutes' use.

Eye protection

protective goggles.

8.2.2 Exposure to the environment limited and controlled

Prevent material from entering surface waters, drains or sewers and soil. Do not introduce large amounts into purification plants.

8.3 Further information for System design and engineering measures

Observe information in section 7.

SECTION 9: Physical and chemical properties

9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

General information:
Physical State /form . . . . . : pasty
Colour . . . . . : beige
Odour . . . . . : strong

Important information about the protection of health, safety and the environment:

Property:	Value:	Method:
Melting point / melting range	: not applicable	
Boiling point/ boiling range	: approx. 111 °C at 1013 hPa	
Flash point	: 8 °C	(ISO 13736)
Ignition temperature	: 420 °C	
Lower explosion limit (LEL)	: approx. 1,2 Vol-%	
Upper explosion limit (UEL)	: approx. 7,0 Vol-%	
Vapour pressure	: 29 hPa bei 20 °C	
Density	: 2,4 g/cm³	(DIN 53479)
Water solubility / miscibility	: virtually insoluble	
pH-Value	: not applicable	
Viscosity (dynamic)	: not applicable, pasty	

9.2 Other information

No data are available.

SECTION 10: Stability and reactivity

10.1 – 10.3 Reactivity; Chemical stability; Possibility of hazardous reactions

If stored and handled in accordance with Standard industrial practices no hazardous reactions are known.
Relevant information can possibly be found in other parts of this section.

10.4 Conditions to avoid

moisture

10.5 Incompatible materials

Reacts with: water. Reaction causes the formation of: n-butyl amine.

10.6 Hazardous decomposition products

Under the effect of humidity, water and protic agents: n-butyl amine . The following applies for the silicone content of the substance: Measurements have shown the formation of small amounts of formaldehyde attemperatures above about 150 °C (302 °F) through oxidation.

SECTION 11: Toxicologial information

11.1 Information on toxicological effects

11.1.1 General information

Data derived for the product as a whole are of higher priority than data for Single ingredients.

11.1.2 Acute toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Acute toxicity estimate (ATE):
ATE_{mix} (oral): > 2000 mg/kg

Data related to ingredients:

Toluene:

Route of exposure	Result/Effect	Species/Test System	Source
oral	LD_{50}: 5580 mg/kg	rat	ECHA
dermal	LD_{50}: 12400 mg/kg	rabbit	ECHA
by inhalation (vapour)	LC_{50}: 28,1 mg/l; 4 h	rat	ECHA

11.1.3 Skin corrosion/irritation

Assessment:

Irritation of the skin must be expected. Due to a strong adherence to the skin symptoms of skin corrosion cannot be excluded after removing the substance mechanically.

Product details:

Result/Effect	Species/Test System	Source
not corrosive	Corrosilex	Conclusion by analogy

Data related to ingredients:

Toluene:

Result/Effect	Species/Test System	Source
irritating	rabbit	ECHA OECD 404

11.1.4 Serious eye damage /eye irritation

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

Result/Effect	Species/Test System	Source
not irritating	rabbit	ECHA OECD 405

11.1.5 Respiratory orskin sensitization

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

Route of exposure	Result/Effect	Species/Test System	Source
dermal	not sensitizing	guinea-pig; Magnusson-Kligman	ECHA OECD 406

11.1.6 Germ cell mutagenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

Result/Effect		Spezies/Testsystem	Source
negative		mutation assay (in vitro) mouse lymphoma cells	ECHA OECD 476
negative		mutation assay (in vitro) bacterial cells	ECHA OECD 471
negative		chromosome aberration assay (in vivo) rat intraperitoneal; bone marrow cells	ECHA

11.1.7 Carcinogenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

For this endpoint no toxicological test data is available for the whole product.

11.1.8 Reproductive toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

The substance can possibly impair the unborn child in humans.

11.1.9 Specific target organ toxicity (Single exposure)

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

Route of exposure	Result/Effect	Source
by inhalation	Target organs: central nervous System Vapours may be narcotising.	ECHA

11.1.10 Specific target organ toxicity (repeated exposure)

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data related to ingredients:

Toluene:

Target organs/target tissues in animal experiments: central nervous System

11.1.11 Aspirationsgefahr

Assessment:

Based on the physical-chemical properties of the product no aspiration hazard must be expected.

Data related to ingredients:

Toluene:

Product can pose an aspiration hazard.

11.1.12 Further toxicological Information

Product(s) of hydrolysis: In contact with dampness product separates a small quantity of n-butylamine (109-73-9) which irritates skin, mucous membranes and respiratory System.

SECTION 12: Ecological information

12.1 Toxicity

Assessment:

For the product as a whole, no test data is available.

Data related to ingredients:

Data derived for the product as a whole are of higher priority than data for Single ingredients.

Toluene:

Result/Effect	Species/Test System	Source
LC_{50}: 5,5 mg/l (measured)	dynamic Coho salmon (Oncorhynchus kisutch) (96 h)	ECHA
EC_{50}: 3,78 mg/l (measured)	semistatic Daphnia (48 h)	ECHA
EC_{50} (photosynthesis): 134 mg/l (nominal)	algae (3 h)	ECHA

12.2 Persistence and degradability

Assessment:

Silicone content: Biologically not degradable.

Data related to ingredients:

Toluene:

Readily biologically degradable.

12.3 Bioaccumulative potential

Assessment:

No adverse effects expected.

12.4 Mobility in soil

Assessment:

No adverse effects expected.

12.5 Results of PBT and vPvB assessment

No data are available.

12.6 Other adverse effects

none known

12.7 Additional information

In cross-linked State not soluble in water. Easily separable from water by filtration.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Material

Recommendation:
Dispose of according to regulations by incineration in a Special waste incinerator. Observe local/state/federal regulations.

13.1.2 Uncleaned packaging

Recommendation:
Compieteiy discharge Containers (no tear drops, no powder rest, scraped carefuiiy). Containers may be recycled or re-used.
Observe local/state/federal regulations.

13.1.3 Waste Disposal Legislation Ref.No.(EC)

It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal Operator.

SECTION 14: Transport information\

Road ADR:
Valuation . . . . . : Hazardous product
14.1 UN-No . . . . . : 1993
14.2 Proper Shipping Name . . . . . : Flammable liquid, n.o.s. (contains toluene and methylbutylaminosilan)
14.3 Class . . . . . : 3
14.4 Packaging Group . . . . . : II

Railway RID:
Valuation . . . . . : Hazardous product
14.1 UN-No . . . . . : 1993
14.2 Proper Shipping Name . . . . . : Flammable liquid, n.o.s. (contains toluene and methylbutylaminosilan)
14.3 Class . . . . . : 3
14.4 Packaging Group . . . . . : II

Transport by sea IMDG-Code:
Valuation . . . . . : Hazardous product
14.1 UN-No . . . . . : 1993
14.2 Proper Shipping Name . . . . . : Flammable liquid, n.o.s. (contains toluene and methylbutylaminosilan)
14.3 Class . . . . . : 3
14.4 Packaging Group . . . . . : II

Air transport ICAO-TI/IATA-DGR:
Valuation . . . . . : Hazardous product
14.1 UN-No . . . . . : 1993
14.2 Proper Shipping Name . . . . . : Flammable liquid, n.o.s. (contains toluene and methylbutylaminosilan)
14.3 Class . . . . . : 3
14.4 Packaging Group . . . . . : II

14.5 Environmental hazards
Hazardous to the environment: no
Marine Pollutant (IMDG): no

14.6 Special precautions for user

Relevant Information in other sections have to be considered.

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

Bulk transport in tankers is not intended.

SECTION 15: Regulatory information

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

National and local regulations must be observed.

For information on labelling please refer to section 2 of this document.

Relevant regulations:

SI 2002/1689: CHIP Regulations 2002
SI 2002/2677: COSHH Regulations 2002
SI 1999/3242: Management of Health & Safety at Work Regulations 1999
Health & Safety at Work Act 1974
SI 1993/1643: Environmental Protection Act 1993 & Subsidiary Regulations.
Other national and local measures relating to the workplace, pollution control, environmental protection and waste control.

15.2 Chemical safety assessment

A chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has not been carried out for this product.

15.3 Details of international registration Status:

Relevant information about individual substance inventories, where avaible, is given below.

South Korea	**ECL** (Existing List): This produckt is listed in, or complies with, substance inventory.
People's Republic of China	**AICS** (Australian Inventory of Chemical Substance): This produckt is listed in, or complies with, substance inventory.
Phillipines	**IECSC** (Inventory of Exsisting Chemical Substance): This produckt is listed in, or complies with, substance inventory.
United States of America (USA)	**TSCA** (Toxic Substance Control Act Chemical Substance Inventory): This produckt is listed in, or complies with, substance inventory.
European Economic Area (EEA)	REACH (Regulation (EC) No 1907/2006): General note: the registration obligatiion for substances imported into the EEA or manufactured within the EEA by the supplier mentioned in section 1 are fulfilled by the said supplier. The registration obligation for substances imported into the EEA by customers or other downstream users must be fulfilled by the latter.

SECTION 16: Other information

16.1 Material

The details in this document are based on the State of our knowledge at the time of revision. They do not constitute an assurance of the described product properties in terms of statutory warranty requirements.

The providing of this document to a recipient does not relieve the recipient of his or her responsibility toward compliance with all laws and stipulations applicable to the product. This applies in particular to the further sale or distribution of the product or substances or items containing the product, in other jurisdictions and with regard to the protection of third-party intellectual property rights. If the described product is processed or mixed with other substances or materials, the details stated in this document cannot be conferred to the resultant new product unless this has been expressly mentioned. If the product is repackaged, the recipient is obligated to additionally provide the required safety-related information.

16.2 Further information:

Commas appearing in numerical data denote a decimal point. Vertical lines in the left-hand margin indicate changes compared with the previous Version. This Version supersedes all previous versions.

Explanation of the GHS classification code:

Repr. 2; H361d . . . . . : Reproductive toxicity Category 2 (developmental toxicity); Suspected of damaging the unborn child.
STOT RE 2; H373 . . . . . : Specific target organ toxicity (repeated exposure) Category 2; May cause damage to organs through prolonged or repeated exposure.
STOT SE 3; H336 . . . . . : Specific target organ toxicity (Single exposure) Category 3 (narcotic effects); May cause drowsiness and dizziness.
Skin Irrit. 2; H315 . . . . . : Skin corrosion/irritation Category 2; Causes skin irritation.
Asp. Tox. 1; H304 . . . . . : Aspiration hazard Category 1; May be fatal if swallowed and enters airways.
Flam. Liq. 2; H225 . . . . . : Flammable liquids Category 2; Highly flammable liquid and vapour.
Acute Tox. 4; H302 . . . . . : Acute toxicity Category 4; Harmful if swallowed.
Skin Corr. 1B; H314 . . . . . : Skin corrosion/irritation Category 1B; Causes severe skin burns and eye damage.
Flam. Liq. 2; H225 . . . . . : Flammable liquids Category 2; Highly flammable liquid and vapour.
Eye Dam. 1; H318 . . . . . : Serious eye damage / eye irritation Category 1; Causes serious eye damage.
Flam. Liq. 3; H226..... : Flammable liquids Category 3; Highly flammable liquid and vapour.
Repr. 2;H361f..... : Reproductive toxicity Category 2 (impair fertility); Suspected of damaging fertility.
Aquatic Chronic 4; H413.....Hazardous to the aquatic environment chronic, category 4; May cause long lasting harmful effects to aquatic life

R-Phrase	Description
R11 R38 R48/20 R63 R65 R67	Highly flammable. Irritating to skin. Harmful: danger of serious damage to health by prolonged exposure through nhalation. Possible risk of härm to the unborn child. Harmful: may cause lung damage if swallowed. Vapours may cause drowsiness and dizziness.
R10 R22 R34	Flammable. Harmful if swallowed. Causes burns.
R53 R62	May couse long-term advers effects in the aquatic environment Possible risk impaired fertility.

Classification	**Rationale**
Specific target organ toxicity, (repeateed exposure) Category 2	Calculation method
Specific target organ toxicity (single exposure), Category 3 (narcotic effects)	Calculation method
Reproductive toxicity, Category 2 (developmental toxicity)	Calculation method
Serious eye damage / eye irritation, Category 1	Calculation method
Skin corrosion/irritation, Category 2	Test data
Flammable liquids, Category 2	Test data

- End of Safety Data Sheet -