Safety Data Sheet according to (EC) No 1907/2006

SDS No. : 800022
V001.0

HYSOL GR 2812

Revision: 11.11.2018
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
HYSOL GR 2812

Contains:
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane

1.2. Relevant identified uses of the substance or mixture and uses advised against
Intended use:
Molding Compound

1.3. Details of the supplier of the safety data sheet

Manufacturer
Hysol Huawei Electronic Co., Ltd.
Songtiao Industrial Zone, Lianyungang, Jiangsu,China,
222000
T: +86 518-85155187
F: +86 518-85155060

1.4. Emergency telephone number
24 Hours Emergency Tel: +86 18115208319

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Skin sensitizer	Category 1
H317 May cause an allergic skin reaction.	
Carcinogenicity	Category 2
H351 Suspected of causing cancer.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:

Signal word: Warning

Hazard statement: H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.

Precautionary statement: Prevention P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement: Response P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards
None if used properly.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General chemical description:
Epoxy resin
Base substances of preparation:
resins
organic amine
Filler
General chemical description:
Adhesive

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS-No.	EC Number	content	Classification
Silica, vitreous 60676-86-0	262-373-8	80- < 95 %	Not classified
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)- 4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	413-900-7	1- < 5 %	Carc. 2 H351 Skin Sens. 1 H317
Ti-oxide 13463-67-7	236-675-5	1- < 5 %	Not classified
3-Trimethoxysilylpropane-1-thiol 4420-74-0	224-588-5	0,1- < 1 %	Acute Tox. 4; Oral H302 Skin Sens. 1 H317 Aquatic Chronic 2 H411

For full text of the H - statements and other abbreviations see section 16 "Other information".
Substances without classification may have community workplace exposure limits available.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:
Rinse with running water and soap.
Obtain medical attention if irritation persists.

Eye contact:
Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed
SKIN: Rash, Urticaria.

Prolonged or repeated contact may cause eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed
See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
All common extinguishing agents are suitable.

5.2. Special hazards arising from the substance or mixture
Danger of decomposition if exposed to heat.
See section 10.

5.3. Advice for firefighters
Do not breathe combustion gases.
Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid dust formation.
Depending on workplace dust concentration, wear dust filter mask with particle filter P1, P2 or P3.
Wear protective equipment.
Ensure adequate ventilation.

6.2. Environmental precautions
Do not allow to enter the ground / soil.

6.3. Methods and material for containment and cleaning up
Remove all sources of ignition.
Remove mechanically.
Use appropriate industrial vacuum cleaners or central vacuum systems for dust removal.
Dispose of contaminated material as waste according to Section 13.

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
See advice in section 8
Avoid naked flames, sparking and sources of ignition.
Avoid skin and eye contact.
Avoid dust development and deposition - dust explosion risk. Take precautionary measures against static discharges.

Hygiene measures:
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.
Good industrial hygiene practices should be observed.
Extractors are required on all machines used for thermal or for cutting and grinding processes.

7.2. Conditions for safe storage, including any incompatibilities
Store in sealed original container.
Store in a cool, dry place.
Keep away from heat and direct sunlight.

7.3. Specific end use(s)
Molding Compound

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Silica, vitreous 60676-86-0	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
Austria		0,3		
Belgium		0,1		
Denmark		0,1		0,2
Germany (AGS)		0,3 respirable aerosol		
Germany (DFG)		0,3 respirable aerosol		
Ireland		0,08		
Switzerland		0,3 respirable aerosol		
USA - NIOSH		0,05		
United Kingdom		0,08		

Titanium dioxide 13463-67-7	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
Belgium		10		
Denmark		6 total dust		12 total dust
France		11 inhalable aerosol		
Ireland		10 Inhalable fraction		
		4 Respirable fraction		
Latvia		10		
Poland		10		30
Singapore		10		
Spain		10 inhalable aerosol		
Sweden		5 inhalable aerosol		
Switzerland		3 respirable aerosol		
USA - OSHA		15 total dust		

United Kingdom		10 inhalable aerosol		
		4 respirable aerosol		

Biological Exposure Indices:
None

8.2. Exposure controls:

Engineering controls:
In use may form flammable/explosive dust-air mixtures.
Thorough dedusting.
Avoid naked flames, sparking and sources of ignition.
Ensure good ventilation/suction at the workplace.
No further information, see section 7.

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment.
Depending on workplace dust concentration, wear dust filter mask with particle filter P1, P2 or P3.

Hand protection:
Chemical-resistant protective gloves (EN 374).
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.

Skin protection:
Wear suitable protective clothing.
Protective clothing that covers arms and legs.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	solid
	Golden
Odor	mild
Odour threshold	No data available / Not applicable
pH	No data available / Not applicable
Initial boiling point	Polymerization may occur at elevated temperature.
Flash point	Product is a solid.
Decomposition temperature	No data available / Not applicable
Vapour pressure	No data available / Not applicable
Density (20 °C (68 °F))	1,7 - 2,1 g/cm3
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Not miscible or difficult to mix

Solubility (qualitative) (20 °C (68 °F); Solvent: ketones)	Partially miscible
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts with oxidants, acids and lyes
Polymerization may occur at elevated temperature or in the presence of incompatible materials.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
Danger of dust explosions.
Take measures to prevent the build-up of electrostatic charges.
Danger of decomposition if exposed to heat.
See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

10.5. Incompatible materials
See section reactivity

10.6. Hazardous decomposition products
Hydrocarbons
Irritating vapors.
May produce fumes when heated to decomposition. Fumes may contain carbon monoxide and other toxic fumes.
See section 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

General toxicological information:
The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

Oral toxicity:
May cause irritation to the digestive tract.

Eye irritation:
Prolonged or repeated contact may cause eye irritation.

Sensitizing:
May cause an allergic skin reaction.

Carcinogenicity:
Suspected of causing cancer

Acute oral toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method

2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	LD50	3.563 mg/kg	oral		rat	EU Method B.1 bis (Acute Oral Toxicity
3-Trimethoxysilylpropane-1-thiol 4420-74-0	LD50	850 mg/kg	oral		rat	Not specified

Acute dermal toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	LD50	> 2.000 mg/kg	dermal		rat	EU Method B.3 (Acute Toxicity (Dermal))

Skin corrosion/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	not irritating	4 h	rabbit	EU Method B.4 (Acute Toxicity: Dermal Irritation / Corrosion)

Serious eye damage/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	slightly irritating	24 h	rabbit	EU Method B.5 (Acute Toxicity: Eye Irritation / Corrosion)

Respiratory or skin sensitization:

Hazardous components CAS-No.	Result	Test type	Species	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	not sensitising	Buehler test	guinea pig	EU Method B.6 (Skin Sensitisation)

Germ cell mutagenicity:

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	positive	bacterial gene mutation assay	with and without		
	positive		with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
	no data	in vitro mammalian chromosome aberration test	with and without		EU Method B.10 (Mutagenicity

2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	positive	intraperitoneal		mouse	EU Method B.12 (Mutagenicity

SECTION 12: Ecological information

General ecological information:

If used properly the product does not enter the drains.

In the cured state contribution of this product to Environmental Hazards is insignificant in comparison to articles in which it is used.

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

12.1. Toxicity

Ecotoxicity:
Do not empty into drains / surface water / ground water.

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	LC50	> 0,1 mg/l	Fish	24 h	Oncorhynchus mykiss	EU Method C.1 (Acute Toxicity for Fish)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	EC50	> 0,15 mg/l	Daphnia	24 h	Daphnia magna	EU Method C.2 (Acute Toxicity for Daphnia)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	NOEC	> 0,15 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	EU Method C.3 (Algal Inhibition test)
	EC50	> 0,15 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	EU Method C.3 (Algal Inhibition test)
3-Trimethoxysilylpropane-1-thiol 4420-74-0	LC50	439 mg/l	Fish	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)
3-Trimethoxysilylpropane-1-thiol 4420-74-0	EC50	6,7 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

12.2. Persistence and degradability

Persistence and Biodegradability:
The product is not biodegradable.

Hazardous components CAS-No.	Result	Route of application	Degradability	Method

3-Trimethoxysilylpropane-1-thiol 4420-74-0		aerobic	51 %	OECD Guideline 301 A (new version) (Ready Biodegradability: DOC Die Away Test)

12.3. Bioaccumulative potential / 12.4. Mobility in soil

Mobility:
Cured adhesives are immobile.

Bioaccumulative potential:
No data available.

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	2,9				20 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

12.5. Results of PBT and vPvB assessment

Hazardous components CAS-No.	PBT/vPvB
3-Trimethoxysilylpropane-1-thiol 4420-74-0	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
Special waste incineration with the approval of the responsible local authority.

Disposal of uncleaned packages:
Use packages for recycling only when totally empty.
Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

SECTION 14: Transport information

14.1. UN number

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.2. UN proper shipping name

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.3. Transport hazard class(es)

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.4. Packaging group

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.5. Environmental hazards

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.6. Special precautions for user

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

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

VOC content (2010/75/EC) <3 %

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text
of all abbreviations indicated by codes in this safety data sheet are as follows:

H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.

Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.