SAFETY DATA SHEET

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Version No: 4
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Section 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier: Gorilla Glue

1.2 Relevant identified uses of the substance or mixture and uses advised against:
Polyurethane general use adhesive intended for household repairs

1.3 Details of the supplier of the substance or mixture:
Supplier Gorilla Glue Europe A/S
Egeskovvej 12
DK-3490 Kvistgaard
Denmark
Tel: UK: +44 (0) 1257 241319
Fax: UK: +44()) 808 2801881
www.gorillatough.co.uk
E-mail address: eusales@gorillaglue.com

1.4 Emergency Telephone:
Emergency telephone Gorilla Glue Europe A/S. Tel. +44 (0) 1257 241319
The Gorilla Glue Company. Tel. 001 (513) 271-3300

Section 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture 453/2010/CE
Classification (1272/2008/CE):
Acute toxicity, Inhalative, Category 4 (H332)
Skin irritation, Category 2 (H315)
Eye irritation, Category 2 (H319)
Sensitization of the respiratory airways, Category 1 (H334)
Sensitization of the skin, Category 1 (H317)
Carcinogenicity, Category 2 (H351)
Specific target organ toxicity (single exposure), Category 3 (H335)
Specific target organ toxicity (repeated exposure), Category 2 (H373)

Section 2 HAZARDS IDENTIFICATION (Continued)

Classification (67/548/EEC, 1999/45/EC):
Harmful by inhalation.
May cause sensitization by inhalation and skin contact.
Irritating to eyes, respiratory system and skin.
Limited evidence of a carcinogenic effect.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.

2.2 Label elements
Hazardous components which must be listed on the label
Prepolymer based on aromatic polyisocyanate
diphenyl methane diisocyanate, isomers and homologues
Formaldehyde, oligomeric reaction products with aniline and phosgene (oligomeric MDI)

Labelling (67/548/EEC, 1999/45/EC):
Labeling and classification in accordance with the EC Dangerous Preparations Directive (1999/45/EC) and subsequent amendments

Symbol:

I

Hazard designation: Xn – harmful.

Contains:
Prepolymer based on aromatic polyisocyanate
diphenyl methane diisocyanate, isomers and homologues
Formaldehyde, oligomeric reaction products with aniline and phosgene (oligomeric MDI)

R-phrase(s)	
R20	Harmful by inhalation.
R36/37/38	Irritating to eyes, respiratory system and skin.
R42/43	May cause sensitization by inhalation and skin contact.
R40	Limited evidence of a carcinogenic effect.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
S-phrase(s)	
S23	Do not breathe vapour.
S24	Avoid contact with skin.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37	Wear suitable gloves.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60	This material and its container must be disposed of as hazardous waste.

2.3 Other hazard information

Hazard statements:

H315 Causes skin irritation.
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ eye protection/ face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Section 3 INFORMATION ON INGREDIENTS

3.1 Type of product: Mixture
prepolymer based on aromatic polyisocyanate

Hazardous components

Prepolymer based on aromatic polyisocyanate MDI
Concentration [wt.-%]: ca. 50 - 60
CAS-No.: Trade Secret

4,4'-Diphenylmethane Diisocyanate (MDI)
Concentration [wt.-%]: ca. 15 - 25
CAS-No.: 101-68-8

Polymeric Diphenylmethane Diisocyanate (pMDI)
Concentration [wt.-%]: ca. 10 - 20
CAS-No.: 9016-87-9

Diphenylmethane Diisocyanate (MDI) Mixed Isomers
Concentration [wt.-%]: ca. 1 - 5
CAS-No.: 26447-40-5

Section 4 FIRST AID MEASURES

4.1 Description of first aid measures
General advice: Soiled, soaked clothing and shoes must be immediately removed, decontaminated and disposed of.
If inhaled: Take the person into the fresh air and keep him warm, let him rest; if there is difficulty in breathing, medical advice is required.
In case of skin contact: In the event of contact with the skin, preferably wash with a cleanser based on polyethylene glycol or with plenty of warm water and soap. Consult a doctor in the event of a skin reaction.
In case of eye contact: Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist.
If swallowed: DO NOT induce the patient to vomit, medical advice is required.

4.2 Most important symptoms and effects, both acute and delayed
Notes to physician: The product irritates the respiratory tract and may trigger sensitisation of the skin and respiratory tract. Treatment of acute irritation or bronchial constriction is primarily symptomatic. Extended medical treatment may be required depending on the degree of exposure and the severity of the symptoms.

4.3 Indication of medical attention and special treatment needed
Not Applicable

Section 5 Fire-fighting measures

5.1 Extinguishing media: Carbon dioxide (CO2), Foam, extinguishing powder, in cases of larger fires, water spray should be used. **Unsuitable extinguishing media:** High volume water jet

5.2 Special hazards arising from the substance or mixture:
Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen, isocyanate vapors and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes.

Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.

5.3 Advice for fire-fighters:
During fire-fighting respirator with independent air-supply and airtight garment is required.
Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

Section 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
Put on protective equipment (see chapter 8). Ensure adequate ventilation/exhaust extraction. Keep unauthorized persons away.

6.2 Environment related measures: Do not flush into surface water or sanitary sewer system.

6.3 Methods and material for containment and cleaning up: Remove mechanically; cover the remainder with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approx. one hour transfer to waste container and do not seal (evolution of CO2!). Keep damp in a safe ventilated area for several days.

6.4 Reference to other sections: For further disposal measures see chapter 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:
Provide sufficient air exchange and/or exhaust in work rooms. Exhaust ventilation necessary if product is sprayed. The threshold limit values noted in Chapter 8 must be monitored.
In all areas where isocyanate aerosols and/or vapor concentrations are produced in elevated concentrations, exhaust ventilation must be provided in such a way that the workplace exposure limits (WEL) is not exceeded. The air should be drawn away from the personnel handling the product
The personal protective measures described in Chapter 8 must be observed. The precautions required in the handling of isocyanates must be taken. Avoid contact with skin and eyes and the inhalation of vapor.
Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at the end of workday. Keep working clothes separately. Take off all contaminated clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities:
Keep container tightly closed and dry. Further information on the storage conditions which must be observed to preserve quality can be found in our product information sheet.
VCI storage class (VCI = German Association of the Chemical Industry): 10

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters Components with workplace control parameters

Exposition assessment value (EBW) per TGRS 430: Polyisocyanate content (MDI oligomers and/or prepolymers) 70 %. Use an exposition assessment value of 0,05 mg/m³.

Substance	CAS-No	Basis	Type	Value	Ceiling Limit value	Remarks
diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900		0,05 mg/m³	=2=	Y
diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900	STEL FAC		1	Substance listed with both Peak factor and STEL factor. The Peak factor is supplied with the AGW values.
diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900	STEL CL			Category I: substances for which the localized effect has an assigned OEL respiratory passages.

8.2 Exposure controls
Respiratory Protection:

Respiratory protection required in insufficiently ventilated working areas and during spraying. An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter is recommended.
In case of hypersensitivity of the respiratory tract (e.g. asthmatics and those who suffer from chronic bronchitis) it is inadvisable to work with the product.

Hand protection:
Suitable materials for safety gloves; EN 374-3:
Polychloroprene - CR: thickness >=0,5mm; breakthrough time >=480min.
Nitrile rubber - NBR: thickness >=0,35mm; breakthrough time >=480min.
Butyl rubber - IIR: thickness >=0,5mm; breakthrough time >=480min.
Fluorinated rubber - FKM: thickness >=0,4mm; breakthrough time >=480min.
Recommendation: contaminated gloves should be disposed of.

Eye protection: Wear eye/face protection.

Skin and body protection: Wear suitable protective clothing.

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	liquid
Colour:	dark brown
Odour:	earthy, musty
Odour	Threshold: not established
pH:	not applicable
Initial boiling point:	ca. 208 °C
Flash point:	> 93 °C
Vapour pressure:	< 0,0001 mmHg @ 25°C for the isocyanate
Density:	ca. 1,138 g/cm³ at 20 °C
Specific Gravity:	ca. 1,137 @ 25 °C
Solubility:	Insoluble – Reacts slowly with water to liberate carbon dioxide gas.
Bulk Density:	ca. 1234 kg/m³
Autoignition temperature:	not established.

9.2 Other information: None.

Section 10 STABILITY AND REACTIVITY

10.1 Reactivity: Reacts with moisture, other materials that react with isocyanates, or temperatures above 177°C, may cause Polymerization.

10.2 Chemical stability: stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions: Exothermic reaction with amines and alcohols; reacts with water forming CO2; in closed containers, risk of bursting owing to increase of pressure.

10.4 Conditions to avoid: Heat, flames, and sparks. Protect from freezing.

10.5 Incompatible materials: water, amines, strong bases, alcohols, copper alloys.

10.6 Hazardous decomposition products: By Fire and High Heat – Carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke, isocyanate, isocyanic acid, other undetermined compounds.

Section 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Toxicity data based on polymeric MDI.

Acute toxicity, oral:
LD50 rat, male/female: >2.000 mg/kg

Acute toxicity, inhalation:
LC50 rat: 490 mg/m^3, 4 h

Skin Irritation:
Rabbit, Slightly irritating

Repeated Dose Toxicity:
90 days, inhalation: NOAEL: 1 mg/m^3 (rat, male/female, 6 hrs/day, 5 days/week): Irritation to lungs and nasal cavity.
2 years, inhalation: NOAEL: 0,2 mg/m^3 (rat, male/female, 6 hrs/day, 5 days/week): Irritation to lungs and nasal cavity.

Mutagenicity:
Genetic Toxicity in Vitro: Bacterial – gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity:
Rat, male/female, inhalation, 2 years, 6 hrs/day 5 days/week – Exposure to a level of 6 mg/m^3 polymeric MDI was related to occurrence of lung tumors.

Toxicity data for 4,4'-Diphenylmethane Diisocyanate (MDI)

Acute inhalation toxicity
LC50 rat male/female: 369 mg/m^3, 4 h

Acute dermal toxicity
LD50 rabbit: >10.000 mg/kg

Skin Irritation:
Rabbit, Draize Test, Slightly irritating

Eye Irritation:
Rabbit, Draize Test, Slightly irritating

Sensitization:
Dermal: sensitizer (guinea pig)
Inhalation: sensitizer (guinea pig)

Repeated Dose Toxicity:
90 days, inhalation: NOAEL: 0.3 mg/m^3 (rat, male/female, 18 hrs/day, 5 days/week): Irritation to lungs and nasal cavity.

Mutagenicity:
Genetic Toxicity in Vitro: Ames: (Salmonella typhimurium, Metabolic Activation: with/without) Positive and Negative results were Reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity Results.
Genetic Toxicity in Vitro: Micronucleus Assay: (mouse) Negative

Carcinogenicity:
Rat, female, inhalation, 2 years, 17 hrs/day 5 days/week: Negative

Additional information:
Special properties/effects: Over-exposure entails the risk of concentration-dependent irritating effects on eyes, nose throat, and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible.
Hypersensitive persons may suffer from these effects even at low isocyanate concentrations, including concentrations below the UK Workplace Exposure Limit (WEL). Prolonged contact with the skin may cause tanning and irritant effects.

Section 12 ECOLOGICAL INFORMATION

Ecotoxicological studies of the product are not available.
Do not allow to escape into waterways, wastewater or soil.

Please find below the ecotoxicological data available to us for the components.
12.1 Toxicity
Acute Fish toxicity:
LC0: > 1.000 mg/l
Species: Danio rerio (zebra fish)
Exposure duration: 96 h
Acute toxicity for Aquatic Invertebrates (daphnia):
EC50: > 1.000 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 24 h
Acute toxicity for algae:
NOEC: 1.640 mg/l,
Species: Green algae (scenedesmus subspicatus)
Exposure duration: 72 h
Acute microorganisms toxicity:
EC50: > 100 mg/l
Species: activated sludge
Exposure duration: 3 h

12.2 Persistence and degradability
Prepolymer based on aromatic polyisocyanate
Biodegradation: 0 %, 28 days, i.e. not readily degradable.

12.3 Bioaccumulative potential: Does not bioaccumulate.

12.4 Mobility in soil: Not available.

12.5 Results of PBT / vPvB assessment: Not available

12.6 Other adverse effects: The product reacts with water at the interface forming CO2 and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by watersoluble solvents. Previous experience shows that polyurea is inert and non-degradable.

Section 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with applicable international, national and local laws, ordinances and statutes.
For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

13.1 Waste treatment methods
After final product withdrawal, all residues must be removed from containers (drip-free, powderfree or paste-free). Once the product residues adhering to the walls of the containers have been rendered harmless, the product and hazard labels must be invalidated. These containers can be returned for recycling to the appropriate centres set up within the framework of the existing takeback scheme of the chemical industry. Containers must be recycled in compliance with national legislation and environmental regulations.
None disposal into waste water.

Section 14 TRANSPORT INFORMATION

ADR/RID Not dangerous goods
ADN Not dangerous goods
This classification data does not apply to transportation by tanker. If required, additional information can be requested from the manufacturer.
IATA Not dangerous goods
IMDG Not dangerous goods

14.1 UN Number
14.2 UN Proper shipping name
14.3 Transport hazard class(es)
14.4 Packing group
14.5 Environmental hazards
14.6 Special precautions for user
Not dangerous cargo.
Keep dry. Avoid temperatures below +15 °C.
Avoid heat above +50 °C. Irritating to skin and mucous membranes.
Keep away from food items, acids and alkalis.
14.7 Transport in bulk according to annex II of MARPOL73/78 and the IBC Code

Section 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
TA Luft List (Germany):
Type: Organic Substances
portion Class 1: 56 %
Fraction of other substances: < 0,1 %
Water contaminating class (Germany): 1 slightly water endangering
(in accordance with Annex 4 to the Directive on Water-Hazardous Substances)
Any existing national regulations on the handling of isocyanates must be observed.

15.2 Chemical assessment: Not available.

Section 16 OTHER INFORMATION
Date of compilation December 6, 2012 (revision 3)

Full text of hazardous (H) warnings referred to under sections 2 and 3 of the CLP classification (1272/2008/CE), (453/2010/CE)
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Section 16 OTHER INFORMATION (Continued)

Full text of R-phrases referred to under sections 2 and 3 of the EU classification (67/548/EEC,1999/45/EC).

R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.
R40 Limited evidence of a carcinogenic effect.
R42/43 May cause sensitization by inhalation and skin contact.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
ISOPA Guidelines for safe loading/unloading, transport and storage of TDI and MDI. ISOPA Order No.: PSC-0005-GUIDL

The information of this SDS is based on the present state of our knowledge and on current EU laws. It is always the responsibility of the user to take all necessary steps in order to fulfil the demand laid down in the local rules and legislation. The information in this SDS is meant as a description of the safety requirements of our product. It is not to be considered as a guarantee of the products properties.