Product	6100B
Revision Date	30/11/2016
Revision	1

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Safety Data Sheet (SDS)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name	**6100B**
Synonyms, Trade Names	No information available.

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Identified Uses	No specific uses identified.
Uses Advised Against	No uses advised against are identified.

1.3 Details of the Supplier of the Safety Data Sheet

Supplier	Renishaw plc Brooms Road Stone Business Park Stone, Staffordshire ST15 0SH United Kingdom Tel: +44 (0) 1785 285000 (during UK office hours 09:00 to 17:00 UTC).
Contact Person	msds@renishaw.com

1.4 Emergency Telephone Number

Emergency Telephone	999 / 911 or local emergency number.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classifcation of the Substance or Mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified
Human Health	Skin Irrit.2 - H315, Eye Irrit.2A - H319, Resp. Sens 1 - H334, Skin. Sens 1 - H317, Carc. 2 - H351, STOT SE 3 - H335, STOT RE 2 - H373
Environment	Aquatic Chronic 1 - H410

2.2 Label Elements

Contains

4,4'-methylenediphenyl diisocyanate
Diphenylmethane diisocyanate
bis(2-ethylhexyl) maleate

Label in Accordance With (EC) No. 1272/2008

Signal Word

Danger

Hazard Statements

H315 Causes skin irritation.
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation.
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 respiratory system, kidney through prolonged or

repeated exposure inhalation, oral
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention
P201 Obtain special instructions before use.
P260 Do not breathe dust/fume/ gas/mist/vapours/spray.
P280 Wear protective gloves/ protective clothing/eye protection/face protection.
P285 In case of inadequate ventilation wear respiratory protection.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P341 IF INHALED: If breathing is difficult, 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.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

EUH Statements

EUH204 Contains isocyanates. May produce an allergic reaction.

2.3 Other Hazards

None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Not applicable.

3.2 Mixtures

Name	Product Identifier	GHS Classification	%
4,4'-methylenediphenyl diisocyanate	CAS-No.: 101-68-8 EC No.: 202-966-0	Skin Irrit.2 - H315, Skin. Sens 1 - H317, Eye Irrit.2A - H319, Acute Tox 4 - H332, Resp. Sens 1 - H334, STOT SE 3 - H335, Carc. 2 - H351, STOT RE 2 - H373	30-60%
Diphenylmethane diisocyanate	CAS-No.: 68092-58-0 EC No.:	Resp. Sens 1 - H334	10-30%
bis(2-ethylhexyl) maleate	CAS-No.: 142-16-5 EC No.: 205-524-5	STOT RE 2 - H373, Aquatic Chronic 1 - H410	10-30%

The Full Text for all Hazard Statements Are Displayed in Section 16.

Composition Comments

The data shown are in accordance with the latest EC Directives.

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

General Information

Provide general first aid, rest, warmth and fresh air. As a general rule, in case of doubt or if symptoms persist, always call a doctor. Seek medical attention for all burns and eye injuries, regardless how minor they may seem. First aid personnel must be aware of own risk during rescue.

Inhalation

If this product is inhaled and symptoms occur, move the exposed person to fresh air promptly. If necessary, clear the airway. If not breathing, give artificial respiration and get medical attention. If breathing is difficult, provide oxygen. If an allergic respiratory reaction occurs, get immediate medical attention.

Ingestion

If this product is ingested get medical attention immediately! Immediately rinse mouth and provide fresh air. If vomiting occurs, the head should be kept low so that stomach content doesn't enter the lungs, and is not swallowed.
Keep airway clear. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Induce vomiting only when directed by medical personnel and person is conscious. Never give anything by mouth to an unconscious person.

Skin Contact

Remove affected person from source of contamination. Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur

after washing.

Eye Contact Do not rub eye. Avoid contaminating unaffected eye. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Remove contact lenses if present and easy to do so. Get medical attention immediately.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

General Information The severity of the symptoms described will vary dependent on the concentration and the length of exposure. Symptoms of exposure include: Irritation of eyes, nose, throat; respiratory sensitization; cough, pulmonary secretions, chest pain, dyspnea (breathing difficulty); asthma. Suspected of causing cancer.

Inhalation Harmful if inhaled. May cause damage to the respiratory system through prolonged or repeated exposure by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Inhalation may cause respiratory irritation. If an allergic respiratory reaction occurs, get immediate medical attention.

Ingestion May cause digestive tract irritation, pain or vomiting.

Skin Contact Causes skin irritation. May cause an allergic skin reaction.

Eye Contact Causes serious eye irritation.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

Notes to the Physician Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Extinguishing Media Use fire-extinguishing media appropriate for surrounding materials: Carbon dioxide, foam, fire extinguishing powder, dry sand.

Unsuitable Extinguishing Media Do not use water jet as an extinguisher.

5.2 Special Hazards Arising From the Substance or Mixture

Hazardous Combustion Products In case of fire, toxic gases (CO, CO2, NOx) may be formed.

Unusual Fire & Explosion Hazards No unusual fire or explosion hazards noted.

Specific Hazards Floors may become slippery, avoid falls.

5.3 Advice for Firefighters

Special Fire Fighting Procedures If possible, fight fire from protected position. Ventilate closed spaces before entering them. Keep up-wind to avoid fumes. Avoid breathing fire vapours. Containers close to fire should be removed immediately or cooled with water if safe to do so.
For initial fire, use dry chemical, carbon dioxide or dry sand. In case of a massive fire, use foam extinguisher. After fire is extinguished, neutralize wet isocyanate.
Take measures to avoid the spill of the products or chemicals to rivers or drains due to water-discharge from fire fighting.
For neutralizing agent: see section 6.2.

Protective Equipment for Firefighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions Wear protective clothing as described in Section 8 of this safety data sheet. Eliminate all sources of ignition. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. In case of inadequate ventilation, use respiratory protection.
Do not smoke, eat or drink while using this product. Read and follow manufacturer's recommendations. Do not touch or walk through spilled material. Keep unnecessary and unprotected personnel from entering. Avoid prolonged or repeated exposure.

For Emergency Responders Follow safe handling advice and personal protective equipment recommendations for normal use of product.

6.2 Environmental Precautions

Environmental Precautions Do not discharge into drains, water courses or onto the ground.

6.3 Methods and Material for Containment and Cleaning Up

Spill Clean Up Methods Stop leak if possible without risk. Wear respirator if ventilation is not adequate. Eliminate all sources of ignition. Ventilate and evacuate the area. Wear necessary protective equipment. DO NOT touch spilled material!
Use non sparking tools or equipment for clean up. Absorb spillage with non-combustible, absorbent material - sand. In case of a large scale of spill, dyke area with sand to stop the spill spreading. Neutralize by dispersing neutralizing agent and absorb with sand. Wash work area with water. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container.
Example of neutralizing agent: water/sodium carbonate/liquid detergent (parts by weight)=90-95 / 5-10 / 0.2-0.5. Wash thoroughly after dealing with a spillage.

6.4 Reference to Other Sections

Reference to Other Sections See section 1 for emergency contact. For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Handling Use proper personal protection when handling (refer to Section 8). Provide good ventilation. Wear appropriate respirator when ventilation is inadequate. Keep away from heat, sparks and open flame. Static electricity and formation of sparks must be prevented. Do not eat, drink or smoke when using the product. Avoid inhalation of vapours.
Avoid contact with skin and eyes. Do not use contact lenses. Avoid prolonged or repeated contact. Read and follow manufacturer's recommendations. Do not mix with other chemicals.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Storage Precautions Keep locked up and out of reach of children. Keep away from heat, sparks, direct sunlight and open flames. Avoid contact with water, amine compounds and polyol reacting with isocyanate.
Store in tightly closed original container in a dry, cool and well-ventilated place. After opening containers, replace with dry nitrogen or dry air and tightly seal the container to prevent leaks. To avoid static electricity, ground equipment.

Storage Class Hazardous material storage.

7.3 Specific End Use(s)

Specific End Use(s) The identified uses for this product are detailed in Section 1.

Usage Description Use only according to directions. Replace and tighten cap after use. Avoid static build up by suitable earthing arrangements.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Component	STD	TWA (8 Hrs)		STEL (15mins)		Notes
4,4'-methylenediphenyl diisocyanate	WEL		0.02mg/m3		0.07mg/m3	Sen
4,4'-methylenediphenyl diisocyanate	NIOSH	0.005ppm	0.05mg/m3	0.02ppm	0.2mg/m3	

Ingredient Comments Workplace Exposure Limits Guidance Note EH40/2005. The National Institute for Occupational Safety and Health (NIOSH).

8.2 Exposure Controls

Protective Equipment

Engineering Measures	Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Facilities for handling this product should be closed system. Ensure surfaces and floors are made from non-permeable material.
Respiratory Equipment	Where risk assessment shows air-purifying respirators are appropriate a full face respirator conforming to EN143 should be used, and suitable respirator cartridges as a backup to engineering controls. Recommended: Respirator with combination filter for vapour/particulate (EN 141). Consult manufacturer for specific advice. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as CEN (EU).
Hand Protection	Selection of the glove material depends on consideration of the penetration times, rates of diffusion and degradation, and concentration specific to the workplace. Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374) is recommended. Gloves must be inspected prior to use. Use suitable organic solvent resistant gloves if there is a risk of skin contact. Suggested material: Chloroprene. Nitrile rubber. Consult manufacturer for specific advice. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Eye Protection	Wear safety goggles or face shield to prevent any possibility of eye contact. Use equipment for eye protection tested and approved under appropriate government standards such as EN 166(EU).
Other Protection	Wear appropriate clothing to prevent any possibility of skin contact. Chemical resistant anti-static work clothes and safety shoes are recommended. Select appropriate protective clothing based on chemical resistance data and an assessment of local exposure potential. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handing this product.
Hygiene Measures	Wash promptly if skin becomes contaminated. Handle in accordance with good industrial hygiene and safety practice. DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet.
Process Conditions	Use only according to directions. Keep container tightly sealed when not in use. Ensure that eye flushing systems are located close by in the work place.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Appearance	Liquid.
Colour	Light yellow.
Odour	Weak odour.
Odour Threshold - Lower	No information available.
Odour Threshold - Upper	No information available.
pH-Value, Conc. Solution	No information available.
pH-Value, Diluted Solution	No information available.
Melting Point	-10.00 °C
Initial Boiling Point and Boiling Range	No information available.
Flash Point	180.00 °C
Evaporation Rate	No information available.
Flammability State	No information available.
Flammability Limit - Lower(%)	No information available.

Flammability Limit - Upper(%)	No information available.
Vapour Pressure	No information available.
Vapour Density (air=1)	No information available.
Relative Density	1.14g/cm3 @ 25.00 °C
Bulk Density	No information available.
Solubility	Soluble in benzene, toluene, chlorbenzene and acetone.
Decomposition Temperature	No information available.
Partition Coefficient; n-Octanol/Water	No information available.
Auto Ignition Temperature (°C)	No information available.
Viscosity	No information available.
Explosive Properties	Not classified as explosive.
Oxidising Properties	No information available.

9.2 Other Information

Molecular Weight	No information available.
Volatile Organic Compound	No information available.
Other Information	None noted.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Reactivity	Very active. Reacts with water, amine, alcohol and other compounds containing active hydrogen and generates heat. Generates carbon dioxide when reacted with water.

10.2 Chemical Stability

Stability	Relatively stable when stored in a cool and dark place.

10.3 Possibility of Hazardous Reactions

Hazardous Reactions	Reacts with active hydrogen compounds such as water, alcohol and amine and generates heat. If mixed with water, carbon dioxide is generated which may cause containers to rupture or explode.
Hazardous Polymerisation	Contact with basic substances or organic metallic compounds, may generate heat due to polymerization.
Polymerisation Description	Unknown.

10.4 Conditions to Avoid

Conditions to Avoid	Fire and high temperature.

10.5 Incompatible Materials

Materials to Avoid	Avoid contact with water, alcohol, amines, basic substance or organic metallic compounds.

10.6 Hazardous Decomposition Products

Hazardous Decomposition Products	When heated, vapours/gases hazardous to health may be formed. Combustion produces toxic gases such as carbon monoxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Toxicological Information	No toxicological information for the overall finished product.
Acute Toxicity (Oral LD50)	>5000.00mg/kg Rat
Acute Toxicity (Dermal LD50)	>10000.00mg/kg Rabbit
Acute Toxicity (Inhalation LD50)	>370.00mg/m-3 Rat 4 Hours
Serious Eye Damage/Irritation	Causes serious eye irritation.
Skin Corrosion/Irritation	No information available.
Respiratory Sensitisation	No information available.
Skin Sensitisation	No information available.
Germ Cell Mutagenicity	No information available.
Carcinogenicity	No information available.
Specific Target Organ Toxicity - Single Exposure:	
STOT - Single Exposure	No information available.
Specific Target Organ Toxicity - Repeated Exposure:	
STOT - Repeated Exposure	No information available.
Inhalation	Harmful if inhaled. May cause damage to the respiratory system through prolonged or repeated exposure by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Inhalation may cause respiratory irritation. If an allergic respiratory reaction occurs, get immediate medical attention.
Ingestion	May cause digestive tract irritation, pain or vomiting.
Skin Contact	Causes skin irritation. May cause an allergic skin reaction.
Eye Contact	Causes serious eye irritation.
Waste Management	When handling waste, consideration should be made to the safety precautions applying to handling of the product Curing in large quantities or under improper conditions may cause fire. Dispose of without curing and mixing with other materials. Do not discharge wastewater used for washing of container and equipment into ground or drain without treatment.
Routes of Entry	No information available.
Target Organs	Eyes, skin, digestive system, respiratory system.
Aspiration Hazards:	
Reproductive Toxicity:	No information available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Acute Toxicity - Fish	No information available.
Acute Toxicity - Aquatic Invertebrates	No information available.
Acute Toxicity - Aquatic Plants	No information available.
Acute Toxicity - Microorganisms	No information available.
Chronic Toxicity - Fish	No information available.
Chronic Toxicity - Aquatic Invertebrates	No information available.
Chronic Toxicity - Aquatic Plants	No information available.
Chronic Toxicity - Microorganisms	No information available.
Ecotoxicity	This product contains a substance which is very toxic to aquatic life with long-lasting effects.
Eco Toxilogical Information	The product contains a substance which is harmful to aquatic organisms.

12.2 Persistence and Degradability

Degradability	No information available.
Biological Oxygen Demand	No information available.
Chemical Oxygen Demand	No information available.

12.3 Bioaccumulative Potential

Bioaccumulative Potential	No data available on bioaccumulation.
Bioacculmation Factor	No information available.
Partition Coefficient; n-Octanol/Water	No information available.

12.4 Mobility in Soil

Mobility	No information available.

12.5 Results of PBT and vPvB Assessment

Results of PBT and vPvB Assessment	No information available.

12.6 Other Adverse Effects

Other Adverse Effects	No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Management	When handling waste, consideration should be made to the safety precautions applying to handling of the product Curing in large quantities or under improper conditions may cause fire. Dispose of without curing and mixing with other materials. Do not discharge wastewater used for washing of container and equipment into ground or drain without treatment.

13.1 Waste Treatment Methods

Disposal Methods	Dispose of in accordance with national and local regulations for special waste via an appropriately licensed waste contractor.

SECTION 14: TRANSPORT INFORMATION

14.1 UN Number

UN No. (ADR)	UN3082
UN No. (IMDG)	UN3082
UN No. (IATA)	UN3082

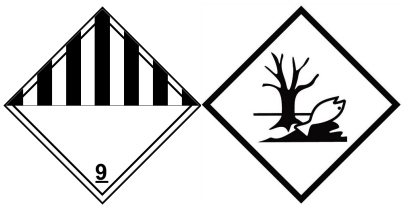
14.2 UN Proper Shipping Name

ADR Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis(2-ethylhexyl) maleate)
IMDG Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis(2-ethylhexyl) maleate)
IATA Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID N.O.S. (bis(2-ethylhexyl) maleate)

14.3 Transport Hazard Class(es)

ADR Class	9
IMDG Class	9
IATA Class	9

Transport Labels



14.4 Packing Group

ADR/RID/ADN Packing Group	III
IMDG Packing Group	III
IATA Packing Group	III

14.5 Environmental Hazards

ADR	Yes
IMDG	Yes
IATA	Yes

14.6 Special Precautions for User

EMS	F-A, S-F
Emergency Action Code	A97
Hazard No. (ADR)	90
Tunnel Restriction Code	(E)

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

EU Legislation	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 with amendments. The UN Globally Harmonized System (GHS) Safety Data Sheet format (Annex IV) is implemented as Annex II of REACH EU No 453/2010 of 20th May 2010 amending regulation (EC) No 1907/2006.
Approved Code of Practice	Workplace Exposure Limits Guidance Note EH40/2005.
Chemical Safety Assessment	No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General Information	This Safety Data Sheet is in accordance with Reach Regulation (EC) No 453/2010.
Revision Comments	This is a first issue.
Revision Date	30/11/2016
Revision	1
Safety Data Sheet Status	Approved.

Hazard Statements In Full

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 [*].
H410	Very toxic to aquatic life with long lasting effects.
EUH204	Contains isocyanates. May produce an allergic reaction.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.