Product	3165 A
Revision date	22 February 2018
Revision	1

Safety Data Sheet (SDS)

Section 1: Identification of the substance/preparation and of the company/undertaking

1.1 Product identifier

Product name	**3165 A**
Synonyms, Trade names	No information available.

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

Identified uses	Component(s) for the manufacture of urethane polymers.
Uses advised against	Any other purpose.

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 Classification of the substance or mixture

Classification (EC 1272/2008)	
Physical and chemical hazards	Not classified
Human health	Not classified
Environment	Not classified

2.2 Label elements

Contains	Not applicable
Label in accordance with (EC) no. 1272/2008	No pictogram required
Signal word	No Signal Word
Hazard statements	No hazard statements required
Precautionary statements	No precautionary statements required

2.3 Other hazards

This product is not classified as hazardous. The information in this datasheet is given for guidance only.

Section 3: Composition/identification of ingredients

3.1 Substance

Not applicable.

3.2 Mixtures

Name	Product identifier	Reg. EU 1272/2008	%
Polyether polyol	CAS-No.: EC No.:		60-100%
butane-1,4-diol	CAS-No.: 110-63-4 EC No.: 203-786-5	Acute Tox 4 - H302, STOT SE 3 - H336	1-10%

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 breathing is difficult, give oxygen. Seek medical attention. Keep person warm and at rest.

Ingestion If this product is ingested, remove victim immediately from source of exposure. Rinse mouth thoroughly. Do not induce vomiting. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Never give anything by mouth to an unconscious person. Seek medical advice (show the label where possible).

Skin contact Wash exposed area with soap and water. Get medical attention if irritation develops or persists. Contaminated clothing should be washed before re-use.

Eye contact Do not rub eye. If this product contacts the eyes, gently flush eyes with water for at least fifteen (15) minutes, lifting the upper and lower eyelids occasionally. Avoid contaminating unaffected eye. Remove contact lenses if present and easy to do so. Seek medical attention.

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.

Inhalation No specific symptoms noted.

Ingestion No specific symptoms noted.

Skin contact No specific symptoms noted.

Eye contact May cause temporary 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: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media High volume water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products During fire, toxic gases (CO, CO2) are formed.

Unusual fire & explosion hazards No unusual fire or explosion hazards noted.

Specific hazards If heated, harmful vapours may be formed. Floors may become slippery, avoid falls.

5.3 Advice for firefighters

Special fire fighting procedures If possible, fight fire from protected position. Use powder, dry chemical, carbon dioxide etc. for initial stage of fire. For a large scale fire, use foam to smother flames. Avoid breathing

	fire vapours. Ventilate closed spaces before entering them. Keep up-wind to avoid fumes. Containers close to fire should be removed immediately or cooled with water if safe to do so.
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	Do not touch or walk through spilled material. Evacuate and ventilate area. Eliminate all sources of ignition. Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. In case of inadequate ventilation, use respiratory protection. Do not smoke, eat or drink while using this product. Keep unnecessary and unprotected personnel from entering.
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 allow ANY environmental contamination. Do not discharge onto the ground or into water courses.

6.3 Methods and material for containment and cleaning up

Spill clean up methods	Wear appropriate personal protective equipment as specified in Section 8. Stop leak if possible without risk. DO NOT touch spilled material! Ventilate and evacuate the area. Eliminate all sources of ignition. Absorb spillage with non-combustible, absorbent material - sand. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. In case of a large scale of spill, dyke area with sand to stop the spill spreading. Wash work area with water.

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	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. Do not use contact lenses. Avoid contact with skin and eyes. Avoid inhalation of vapours. Avoid prolonged or repeated contact. Provide good ventilation. Wear personal protective equipment. Handle and open container with care. Do not mix with other chemicals. Observe good industrial hygiene practices.

7.2 Conditions for safe storage, including any incompatibilities

Storage precautions	Close container tightly and store in dry, cool and dark place away from direct sunlight. Protect from moisture. Keep away from heat, sparks and open flame. Keep away from incompatible materials (see section 10). Store in the following material(s): Carbon steel. Stainless steel. Polypropylene. Polyethylene-lined container. Teflon. Glass-lined container. Aluminum. Plasite 3066 lined container. Plasite 3070 lined container. 316 stainless steel. Storage Period: 12 Months. Storage temperature: 1 - 30°C.
Storage class	Chemical 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.

Section 8: Exposure controls/Personal protection

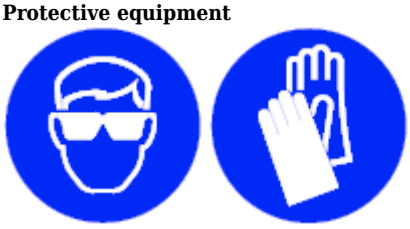
8.1 Control parameters

Ingredient comments

No exposure limits noted for ingredient(s).
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.

Respiratory equipment

Where risk assessment shows air-purifying respirators are appropriate a full face respirator conforming to EN143, and suitable respirator cartridges as a backup to engineering controls. Organic vapor cartridge with a particulate pre-filter, type AP2. Use respirators and components tested and approved under appropriate government standards such as CEN (EU).
Change filters frequently. Use respiratory protection as specified by an industrial hygienist or other qualified professional if concentrations exceed the limits listed in Section 8.

Hand protection

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. Suggested material: Nitrile/Chloroprene. Consult manufacturer for specific advice. Layer thickness: >= 0.35 mm.
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. Change gloves regularly. Selection of the glove material depends on consideration of the penetration times, rates of diffusion and degradation, and concentration specific to the workplace.

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. 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.

Hygiene measures

Observe normal hygiene standards. Keep container tightly closed. Do not eat, drink or smoke during work. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Wash promptly if skin becomes wet or contaminated.

Process conditions

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	Colorless to yellow.
Odour	Mild.
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	No information available.
Initial boiling point and boiling range	> 180 °C (estimated) @ 760 mmHg.
Flash point	> 100 °C (estimated, closed cup).

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	1.01 - 1.05 @ 25 °C (supplier information).
Bulk density	No information available.
Solubility	Insoluble in water.
Decomposition temperature	No information available.
Partition coefficient; n-Octanol/Water	No information available.
Auto ignition temperature (°C)	No information available.
Viscosity	Kinematic viscosity: 1000 - 2000 mm2/s @ 25 °C (supplier information).
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 Stable under recommended transport and storage conditions and under recommended use.

10.2 Chemical stability

Stability Stable under normal temperature conditions and recommended use.

10.3 Possibility of hazardous reactions

Hazardous reactions No information available.
Hazardous polymerisation Polymerization will not occur by itself.
Polymerisation description Unknown.

10.4 Conditions to Avoid

Conditions to avoid Heat, sparks, open flames, temperature extremes and direct sunlight. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. The reaction of polyols and isocyanates generates heat.

10.5 Incompatible materials

Materials to avoid Store separately from acids, alkalies, and oxidising agents. Avoid unintended contact with isocyanates.

10.6 Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other harmful gases or vapors. Decomposition products can include and are not limited to: Carbon dioxide. Alcohols. Ethers. Hydrocarbons. Ketones. Polymer fragments.

Section 11: Toxicological information

11.1 Information on toxicological effects

Toxicological information	No toxicological information for the overall finished product.
Acute toxicity (Oral LD50)	Single dose oral LD50 has not been determined. Based on information for component(s): LD50, Rat > 2,000 mg/kg.
Acute toxicity (Dermal LD50)	The dermal LD50 has not been determined. Based on information for component(s): LD50, Rabbit > 2,000 mg/kg.
Acute toxicity (Inhalation LD50)	No information available.
Serious eye damage/irritation	May cause temporary 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	No specific symptoms noted.
Ingestion	No specific symptoms noted.
Skin contact	No specific symptoms noted.
Eye contact	May cause temporary eye irritation.
Waste management	When handling waste, consideration should be made to the safety precautions applying to handling of the product.
Routes of entry	No information available.
Target organs	Contains component(s) which have been reported to cause effects on the following organs in animals: Thymus. Lung. Central nervous system. Bladder.
Aspiration hazards:	No information available.
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	No Ecological information on the finished product.
Eco toxilogical information	No ecological toxicity available on the overall finished product. Data for Component: Polyether polyol - Material is not classified as dangerous to aquatic organisms. Data for Component: Butylene glycol (1,4-butanediol) - Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species). Fish Acute & Prolonged Toxicity: LC50, Japanese medaka (Oryzias latipes), 96 h: > 100 mg/l.

Aquatic Invertebrate Acute Toxicity: EC50, water flea Daphnia magna, 48 h, immobilization: 813 mg/l.
Aquatic Plant Toxicity: EbC50, alga Scenedesmus sp., biomass growth inhibition, 72 h: > 1,000 mg/l.

12.2 Persistence and degradability

Degradability
Data for Component: Polyether polyol - Most polyols are expected to degrade only slowly in the environment.
Data for Component: Butylene glycol (1,4-butanediol) - Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
OECD Biodegradation Tests: 96%, 14 days,10 day window passed. OECD 301A Test.

Biological oxygen demand
No information available.

Chemical oxygen demand
No information available.

12.3 Bioaccumulative potential

Bioaccumulative potential
Data for Component: Polyether polyol - Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).
Data for Component: Butylene glycol (1,4-butanediol) Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Partition coefficient, n-octanol/water (log Pow): -0.88 Measured.

Bioaccumulation factor
No information available.

Partition coefficient; n-Octanol/Water
No information available.

12.4 Mobility in soil

Mobility
Data for Component: Butylene glycol (1,4-butanediol) Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient, soil organic carbon/water (Koc): 1 Estimated. Henry's Law Constant (H): 1.24E-09 atm*m3/mole; 25 °C Estimated.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment
The product does not contain any PBT or vPvB substances.

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.

13.1 Waste treatment methods

Disposal methods
Dispose of waste and residues in accordance with local authority requirements, and in accordance with all local, national and international regulations. For waste disposal, use a licensed industrial waste disposal agent.

Section 14: Transport information

14.1 UN number

UN no. (ADR)
Not applicable.

UN no. (IMDG)
Not applicable.

UN no. (IATA)
Not applicable.

14.2 UN proper shipping name

ADR proper shipping name
Not applicable.

IMDG proper shipping name
Not applicable.

IATA proper shipping name Not applicable.

14.3 Transport hazard class(es)

ADR class Not applicable.
IMDG class Not applicable.
IATA class Not applicable.

Transport labels Not applicable

14.4 Packing group

ADR/RID/ADN packing group Not applicable.
IMDG packing group Not applicable.
IATA packing group Not applicable.

14.5 Environmental hazards

ADR No
IMDG No
IATA No

14.6 Special precautions for user

EMS Not applicable.
Emergency action code Not applicable.
Hazard no. (ADR) Not applicable.
Tunnel restriction code Not applicable.

14.7 Transport in bulk according to annex II of MARPOL73/78 and the IBC code

Not applicable.

Section 15: Regulatory information

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

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 22 February 2018
Revision 1
Safety data sheet status Approved.

Hazard statements in full

H302 Harmful if swallowed.
H336 May cause drowsiness or dizziness.

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.