MATERIAL SAFETY DATA SHEET
ProloNg™ Soluble

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

1.1 Product identifier

Product name	ProloNg™ Soluble
EC number	200-315-5
REACH Registration number	01-2119463277-33
CAS number	57-13-6
Other names	Urea

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

Identified uses	Fertiliser.
Uses advised against	None identified.

1.3 Details of the supplier of the safety data sheet

Supplier	Angus Horticulture Polmood, Guthrie Forfar, Angus, DD8 2TW
Telephone	+44 (0)1241 829049
Fax	+44 (0)1241 829043
E-mail	sales@angus-horticulture.co.uk

1.4 Emergency telephone number

Emergency telephone number	01865 407333 ANGUSHORTICULTURE29003-NCEC
Contact	National Chemical Emergency Centre

National response centre

Address	NHS Direct
Emergency telephone number	+44 111

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with Regulation 1272/2008 (CLP)

Non-hazardous.

Hazard Statement(s) Not applicable.

Classification in accordance with Directive 67/548 (DSD)

Not applicable.

Risk phrase(s) Not applicable.

2.2 Label elements

Hazard pictograms	None.
Signal word	Not applicable.
Hazard statements	None.
Precautionary statements	None.

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2.3 Other hazards

Straight Urea fertilisers are non-hazardous, non-combustible and non-oxidising. However, the following points should be noted for fire and thermal decomposition products: hazardous decomposition products formed under fire conditions; Carbon momoxide (CO), Carbon dioxide (CO2) Nitrogen oxides (NOx), ammonia, nitrous gases. The fertilisers are basically harmless products when handled correctly. However, prolonged or repeated contact with skin may cause discomfort, ingestion of large quantities may give rise to gastro-intestinal disorders and inhalation of dust at high concentrations may cause irritation of the nose; mucous membranes and upper respiratory tract with symptoms such as sore throat and coughing. Prolonged eye contact may cause some irritation. Persons who may have inhaled hazardous decomposition nitrous gases must be laid down and kept rested. Call a doctor immediately. Persons who have inhaled fire effluents require medical observation for at least 48 hours. Symptoms of poisons may even occur several hours after the incident. Urea is a nitrogen fertiliser. Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters. See Section 12. Product forms a slippery surface when combined with water. Ensure adequate ventilation, especially in confined areas. This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Urea
CAS Number: 57-13-6

EC Number: 200-315-5
REACH registration Number: 01-2119463277-33-XXX
Classification (1272/2008 (CLP)
Not classified

<90 - >100%

SECTION 4: First Aid measures

4.1 Description of first aid measures

General If symptoms persist or in case of doubt, seek medical advice.

Inhalation May cause irritation to the mucous membranes. Supply fresh air, consult a doctor in the case of pain. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Ingestion Do not induce vomiting unless instructed explicitly by medical staff. Rinse out mouth and then drink plenty of water. If symptoms persist, consult doctor.
NOTE - never give an unconscious person anything to drink.

Skin contact Wash the affected area with soap and water. Obtain medical attention if symptoms persist

Eye contact Rinse opened eye for several minutes under running water, also under the eyelids. Remove contact lenses if present and easy to do so. Continue rinsing. Obtain medical attention if symptoms persist.

4.2 Most important symptoms and effects, both acute and delayed

Acute effects Gastrointestinal disorder.

Delayed effects Gastrointestinal disorder.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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SECTION 5: Firefighting measures

5.1 Extinguishing media If fertiliser is not directly involved in the fire - Use the best means available to extinguish the fire. If fertiliser is involved in the fire - Use plenty of water. Do not use chemical extinguishers or foams or attempt to smother the fire with steam or sand.

5.2 Special hazards arising from the substance or mixture

Where combustible material is the source of the fire, extinguish this source as a matter of priority. Do not allow molten fertilisers to run into drains. If fire run-off water enters any water course or drains, inform the appropriate water authority immediately. Hazardous decomposition products formed under fire conditions; Carbon momoxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx), ammonia, nitrous gases. Persons who may have inhaled nitrous gases must be laid down and kept rested. Call a doctor immediately. Persons who have inhaled fire effluents require medical observation for at least 48 hours. Symptoms of poisoning may even occur several hours after the incident.

5.3 Advice for firefighters Open doors and windows of the store to give maximum ventilation. Avoid breathing in the fumes (toxic); stand up-wind of the fire. Prevent any contamination of fertiliser by oils or other combustible materials. Use a self-contained breathing apparatus if fumes are being entered. Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid walking through spilled product and exposure to dust

6.2 Environmental precautions Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.

6.3 Methods and material for containment and cleaning up

Any spillage of fertiliser should be cleaned up promptly, swept up and placed in a clean labelled open container for safe disposal, avoiding dusty conditions.

6.4 Reference to other sections For emergency contact information, see Section 1. For personal protection, see Section 8. For waste disposal, see Section 13. Disposal Considerations of SDS.

SECTION 7: Handling and storage

7.1 Precautions for safe handling Avoid excessive generation of dust. Avoid contamination by combustible (eg diesel oil, grease, etc) and/or other incompatible materials. Avoid unnecessary exposure to the atmosphere to prevent moisture pick up. When handling the product over long periods use appropriate personal protective equipment eg gloves. Carefully clean all equipment prior to maintenance and repair

7.2 Conditions for safe storage, including any incompatibilities

Store in compliance with national and local regulations. Locate away from the sources of heat or fire. Keep away from combustible materials and substances mentioned under Section 10. On farm, ensure that the fertiliser is not stored near hay, straw, grain, diesel oil, etc. When stored loose, take particular care to avoid mixing with other fertilisers. Ensure high standard of housekeeping in the storage area. Do not permit smoking and use of naked lights in the storage areas. Any building used for the storage should be dry and well ventilated. Where the nature of the bagged product and climatic conditions so require, store under conditions what will avoid product breakdown by thermal cycling (wide variation in temperature). The product should not be stored in direct sunlight to avoid physical breakdown due to thermal cycling. Packaging materials: Plastic synthetic materials, steel and aluminium are suitable. Avoid the use of copper and zinc.

7.3 Specific end use(s) As a fertiliser.

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SECTION 8: Exposure controls/Personal protection

8.1 Control parameters Occupational exposure limits

Urea (CAS: 57-13-6)

DNEL	Workers - Oral; Long term systemic effects: 42 mg/kg bw/day Workers - Dermal; Long term systemic effects: 580 mg/kg bw/day Workers - Inhalation; Long term systemic effects: 292 mg/m³ General Population - Oral; Long term systemic effects: 42 mg/ke bw/day General Population - Dermal; Long term systemic effects: 580 mg/kg bw/day General Population - Inhalation; Long term systemic effects: 125 mg/m³
PNEC	- Fresh water; 0.047 mg/l. - Salt water; 0.047 mg/l.

8.2 Exposure Controls

Protective equipment



Appropriate engineering controls	Avoid high dust concentration and provide ventilation where necessary.
Hygiene measures	When handling the product do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the working period.
Individual protection	
Respiratory system	If dust concentration is high and/or ventilation is inadequate, use suitable dust mask or respirator with an appropriate filter; EN 136, EN 140, EN 143, EN 149, Filters P2.
Skin & body	Working clothes.
Hand Protection	Wear suitable gloves (eg plastic, rubber or leather) when handling the product over long periods.
Eye Protection	Use appropriate safety eye wear depending on the task being carried out. Wear safety glasses with side protection or safety goggles (EN 166).
Environmental exposure controls	Avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses. Do not flush into surface water or sanitary sewer system.

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SECTION 9: Physical and Chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Solid
Colour	White (prills)
Odour	Odourless
Odour threshold	Not applicable
pH	7.2 (100 g/l at 20°C)
Melting Point/Freezing Point	133°C (DIN 53181)
Initial Boiling Point & Range	Not applicable
Flash Point	Not applicable
Flammability (solid, gas)	Substance is not flammable
Upper/Lower flammability or explosive limits	Not determined
Explosive properties	Product does not present an explosion hazard
Auto-ignition temperature	Product is not self-igniting
Decomposition Temperature	>132°C
Minimum ignition energy	Not applicable
Oxidising properties	Not classified as an oxidiser
Critical temperature	Not applicable
Relative density	Not determined
Density	1.33 g/cm³ at 20°C
Loose bulk density	750 - 900 mg/m³
Vapour pressure at 25°C	0.002 kPa
Vapour density	Not applicable
Partition co-efficient (n-octanol/ water)	1.73 log POW at 20°C
Viscosity	Not applicable
Mean particle size	2-4mm
Water solubility	~1000 g/l at 20°C Hygroscopic; readily draws moisture from the air
Surface tension	No information available
Other information	
Miscibility	Not applicable
Fat solubility	Not available
Gas group	Not applicable
Remarks	No further relevant information available

SECTION 10: Stability & Reactivity

10.1 Reactivity — Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.2 Chemical Stability — Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.3 Possibility of hazardous reactions

Under normal conditions of handling and storage, hazardous reactions will not occur. To avoid thermal decomposition; do not overheat. Thermal decomposition starts at ~180 to 190°C.

10.4 Conditions to avoid — Heat. Heating above 180°C will result in thermal decomposition, (decomposes to gases). Contamination by incompatible materials. Unnecessary exposure to the atmosphere. Sources of heat or fire close to the product. Heating under confinement. Welding or hot work on equipment or plant which may have contained fertiliser without first washing thoroughly to remove all fertiliser.

10.5 Incompatible materials — Ammonium Nitrate and Ammonium Nitrate based fertilisers, strong oxidants, acids, nitrites and other nitrosing agents. Urea reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride.

10.6 Hazardous decomposition products

Under normal conditions of handling and storage, hazardous decomposition product should not be produced. For fire situation: see section 5. When strongly heated, it melts and decomposes releasing toxic fumes (eg Carbon monoxide (CO), Carbon Dioxide (CO2), Nitrogen Oxides (NOx), Ammonia and nitrous gases). See also Sections 2 & 9.

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity	**Urea**	LD_{50} Oral	Rat: 14,300 mg/kg	Rat, male
Acute dermal toxicity				
Acute inhalation toxicity				
Local effects				
Skin irritation		No irritating effect.		
Eye irritation		No irritating effect.		
Sensitisation	No known significant effects or critical hazards to skin or respiratory systems.			
Other	For main ingredient.			
Sub-acute toxicity	Oral 52-week LOAEL = 250 mg/kg bw/day (rat). Specific Target Organ Toxicity - Single exposure; No classification. Repeated exposure; No classification. Aspiration hazard; Not relevant. Toxicokinetics, metabolism and distribution; This substance and its metabolites do not accumulate in the organism but are excreted completely. Inhalation; Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.			
Mutagenicity	No known significant effects or critical hazards.			
Reproductive toxicity	No known significant effects or critical hazards.			
Carcinogenicity	No known significant effects or critical hazards.			
Remarks	Adverse health effects are considered unlikely when the product is handled and used correctly. If large quantities are ingested, may give rise to gastro-intestinal disorders.			

SECTION 12: Ecological information

Ecotoxicity Contains no substances known to be hazardous to the environment

12.1 Toxicity

Urea

Toxicity to fish	LC_{50}: 6810 mg/l, species Leuciscus Idis (Orfe), 96 hour period.
Toxicity to daphnia and other aquatic invertebrates	LC_{50}: 10000 mg/l, species Daphnia Magna (water flea), 48 hour period. NOEC 47 mg/l, species Microcystis Aeruginosea (algal bloom), 8 day period.

12.2 Persistence and degradability

Readily biodegradeable. No known significant effects or critical hazards.

12.3 Bio-accumulative potential

Octanol-water partition coefficient (Kow)	Log Pow; <0, not lipophilic, no bio-accumulation.
Bioconcentration factor (BCF)	No bio-accumulation (based on main ingredient properties).

12.4 Mobility in soil Soluble in water. Predicted to have a high mobility in soil. No further relevant information available.

12.5 Results of PBT and vPvB assessment

Substance characteristics do not meet PBT of vPvB screening criteria.

12.6 Other Adverse effects Urea is a nitrogen fertiliser. Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters. No known significant effects or critical hazards.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods Containers should be cleaned by appropriate method and then re-used or disposed by landfill or incineration as appropriate, in accordance with local and national regulations. Do not remove label until container is thoroughly cleaned. Depending on degree and nature of contamination dispose of by use as fertiliser on farm, as raw material for liquid fertiliser or to an authorised waste facility. Do not empty into drains; dispose of this material and its container in a safe way and in accordance with all applicable local and national regulations. See chapters 06 03 and 06 10 of the lists of wastes (Commission decision 2000/532/EC). Empty the bag by shaking to remove as much as possible of its contents. If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling. See section 7 for safe handling and storage.

SECTION 14: Transport information

14.1 UN number Not applicable.

14.2 UN proper shipping name Not applicable.

14.3 Transport hazard class(es) No transport sign warning required.

14.4 Packing group Not applicable.

14.5 Environmental hazards Not applicable.

14.6 Special precautions for user None.

14.7 Transport in bulk to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL and the IBC Code Not applicable.

SECTION 15: Regulatory Information

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

Regulation EC 1907/2006 (REACH, EC 2003/2003, 96/82 EC
Decision No 1348/2008/EC of the European Parliament & of the Council and Commission Regulation (EC) No 552/2009.

15.2 Chemical safety assessment In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for the main ingredient Urea as a substance.

SECTION 16: Other information

The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of it's publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not considered a warranty or quality specification. The 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 proceed unless specified in the text.

Classification in accordance with Regulation 1272/2008, as listed in Annex VI None.

Classification in accordance with Regulation 1272/2008, by self-classification based on the performed CSA Not classified.

Risk phrases None.
Symbols Not classified.

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Abbreviations & Acronyms

Oxidising solids	Category 3 (Ox Sol 3.)
May intensify fire	Oxidiser (H272).
Eye irritation	Category 2 (Eye Irrit 2).
	Causes serious eye irritation (H319).

CLP	Classification, Labelling and Packaging Regulation (Regulation EC No 1272/2008).
CAS	Chemical Abstracts Number, substance registration number.
EC	European Commission substance identification number.
% w/w	Percentage weigh for weight; percentage by weight of solute in total weigh of solution.
PBT	Persistent, Bio-accumulative and Toxic.
vPvB	very Persistent, very Bio-accumulative.
DNEL	Derived no effect level.
PNEL	Prescribed no effect level.
LC_{50}	Lethal concentration for 50% of subjects.
LD_{50}	Lethal dose for 50% of subjects.
OECD	Organisation for Economic Co-operation and Development.
LOAEL	Lowest observed adverse effect level.
NOAEL	No observed adverse effect level.
EC_{50}	Effective Concentration for 50% of subjects.
NOEC	No observed effect concentration.
LTEL	Long term exposure limit.
STEL	Short term exposure limit.
TW	Time weighted average.

mg/kg/bw/day - mg/kg of body weight per day.
mg/kg/dw - mg/kg of dry weight.

Revision comments NOTE: Lines within the margin indicate significant changes from the previous revision.
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Supersedes date

Disclaimer

The information in the safety document applies only to the specific product detailed in Section 1 and is not necessarily correct for use with other chemicals/products. The product information in this data sheet is, to the best knowledge of Angus Horticulture Ltd, correct at the date of publication. The Manufacturer or Supplier does not accept liability for any loss or damage resulting from reliance on this information. Final determination of the suitability of any product is the responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist.