SECTION 1: Identification of the substance/mixture and of the Company/Undertaking

1.1 Product identifier

Urea

Trade name: Urea
CAS-number: 57-13-6
EC-number: 200-315-5
REACH registration number: 01-2119463277-33-0071

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

Identified uses of the substance: Intermediate, fertilizers, manufacture of substances, formulation of preparations, raw material, use as laboratory reagent, processing aid, manufacture of plastics, cosmetics, personal care products, ink and toners, metal surface treatment products, building and construction preparations, washing and cleaning products, water treatment chemicals, adhesives, sealants, adsorbents, products such as ph-regulators, flocculants, precipitants, neutralisation agents, fillers, putties, plasters, modelling clay, anti-freeze and de-icing products, manufacture of textiles, explosives.

Not recommended uses of the substance: Other uses than the identified uses indicated above.

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer
Misr Fertilizers Production Co. (MOPCO)
Building 194 New Cairo – North Teseaen
Second Sector – City Center – Fifth Settlement
Cairo, Egypt

Telephone: +2 02 267 311 92
Fax: +2 02 267 135 39
E-mail: marketing@mopco-eg.com
(for technical information)

Supplier (Only Representative)

CS3 GmbH
Grauertstraße 12
D 81545 Munich, Germany

Telephone: + 49 173 2314210

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP)

This substance is classified as not hazardous according to Regulation (EC) 1272/2008 [GHS].

2.1.2 Classification according to Directive 67/548/EEC and 1999/45/EC

This substance is not dangerous in the sense of Directive 67/548/EEC and 1999/45/EC.

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) No 1272/2008

There is no obligatory labelling requirement according to Regulation (EC) No 1272/2008.

2.3 Other hazards

This substance does not meet the criteria for classification as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	EC No	CAS No	REACH registration No	Concentration (%)	Classification Regulation (EC) No. 1272/2008 (CLP):	Classification Directive 67/548/EEC
Urea	200-315-5	57-13-6	01-2119463277-33-0071	>98	-	-

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible).

Following inhalation: Remove from exposure. In severe cases, or if recovery is not rapid or complete seek medical attention.

Following skin contact: Change contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, seek medical treatment.

Following eye contact: Rinse thoroughly with water for at least 10 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Following ingestion: Wash out mouth with water. Do not induce vomiting. If patient is conscious, give water to drink. If patient feels unwell seek medical attention. Irrigate thoroughly with water for at least 10 minutes. Obtain medical attention.

Self-protection: First aid assistant: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Can be irritating to skin, eyes and respiratory tract, nose and throat and cause coughing and sneezing. May also affect blood, metabolism and urinary system. Ingestion can cause digestive (gastrointestinal) tract irritation with nausea, vomiting and diarrhoea. May

effect behaviour (altered sleep time, change in motor activity), cardiovascular system (heart rate) and the brain.

4.3 Indication of any immediate medical attention and special treatment needed

Emergency aid: First Aid, decontamination, treatment of symptoms
Treatment: Symptomatic treatment.

SECTION 5: Fire fighting measures

5.1 Extinguishing media

Suitable: water fog, water spray, foam, extinguishing powder. Use extinguishers suitable to cause of fire.
Unsuitable: high power water jet

5.2 Special hazards arising from the substance or mixture

Can be released in case of fire: carbon dioxide (CO_2), carbon monoxide (CO), nitrogen oxides (NO_x)

5.3 Advice for fire fighters

Wear a self-contained breathing apparatus and chemical resistant suit.

Additional information
In case of fire and/or explosion do not breathe fumes. Keep away from unprotected people. Keep upwind. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. In case of gas being released or leakage into waters, ground or the drainage system, the appropriate authorities must be informed. Consult the appropriate authorities about waste disposal.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment. Avoid contact with skin, eye and clothing. Avoid generation of dust. Do not breathe dust.

6.2 Environmental precautions

Dumping into the environment must be prevented. Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills.

6.3 Methods and material for containment and cleaning up

Vacuum or sweep up and place into approved containers for later disposal. Retain contaminated washing water and dispose off safely. Waste disposal according to official state regulations.

6.4 Reference to other sections

Refer to section 8 (personal protection equipment) and section 13 (disposal considerations).

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Information for safe handling
Avoid contact with skin, eye and clothing. Avoid generation of dust. Avoid breathing dust/fume/gas/mist/vapours/spray. Wear personal protection equipment. Provide adequate ventilation.

Technical measures
Provide for sufficient ventilation and punctiform suction at critical points.

Precautions against fire and explosion
Only use material in places where open light, fire and other sources of ignition can be kept away. Avoid sources of ignition - no smoking. Take precautionary measures against electrostatic discharges. Ground/bond container and receiving equipment.

Additional information
Do not eat, drink, smoke or sneeze at the workplace. Observe instructions for use.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Keep container tightly closed in a cool, dry and well-ventilated place. Access is only to be granted to authorised personal. Store in original container protected from direct sunlight.

Packaging materials
Keep/Store only in original container. Keep the packing dry and well sealed to prevent contamination and absorption of dampness. The substance is hygroscopic. Appropriate material: synthetic material, stainless steel, glass

Requirements for storerooms and containers
Keep away from sources of ignition - No smoking. Keep container tightly closed in a cool, dry and well-ventilated place. Do not store in unlabelled containers. Maximum storage temperature: 23°C

Information about storing together in storage facility
Keep away from: food and animal feeding stuff, oxidizing agents

Further information concerning storage conditions
Store in accordance with local regulations.

Storage class: 13 non-combustible solids

7.3 Specific end use(s)

No other uses identified than those indicated in section 1.2.

SECTION 8: Exposure controls / Personal protection

8.1 Control parameters

8.1.1 Limits for occupational exposure

No limits for occupational exposure have been indicated/identified. Source:
GESTIS International Limit Values, TRGS 900 8.1.2 DNEL and PNEC values

DNEL-values

Workers	inhalation	systemic effects - long term exposure	DNEL: 292 mg/m³
Workers	inhalation	systemic effects - acute/short term exposure	DNEL 292 mg/m³
Workers	dermal	systemic effects - long term exposure	DNEL 580 mg/kg bw/d
Workers	dermal	systemic effects - acute/short term exposure	DNEL: 580 mg/kg bw/d
Consumer	inhalation	systemic effects - long term exposure	DNEL: 125 mg/m³
Consumer	inhalation	systemic effects - acute / short term exposure	DNEL: 125 mg/m³
Consumer	dermal	systemic effects - long term exposure	DNEL: 580 mg/kg bw/d
Consumer	dermal	systemic effects - acute / short term exposure	DNEL: 580 mg/kg bw/d
Consumer	oral	systemic effects - long term exposure	DNEL: 42 mg/kg bw/d
Consumer	oral	systemic effects - acute / short term exposure	DNEL: 42 mg/kg bw/d

PNEC-values

Freshwater PNEC aqua (freshwater): 0.047 mg/l

8.1.3 Control-Banding

No information available.

8.2 Exposure controls

Occupational exposure controls

Provide for sufficient ventilation and punctiform suction at critical points. General protection and hygiene measures: Wash hands before breaks and at the end of work. Do not eat, drink, smoke or sneeze at the workplace.

Chemical handling

Avoid contact with skin, eye and clothing. Avoid generation and inhalation of dust.

Personal protection equipment

Wear personal protection equipment. Wash contaminated clothing prior to re-use. Used working clothes should not be used outside the work area.

Respiratory protection

None required where adequate ventilation conditions exist. If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used! Appropriate: dust mask, type P1 (EN 143) or combination filter device (ABEK; EN 14387)

Hand protection

Wear suitable gloves (EN 374). Type of chemical protective gloves to choose depends on the concentration and quantity of dangerous substances as well as on work place specifications. When handling chemical substances, chemical protective gloves must be worn with CE label including a four digit code. Before using check leak tightness / impermeability.
In case of prolonged or frequently repeated skin contact:
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min

Occasional contact (splashes): Material:
Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min

Eye protection
Tightly sealed safety glasses (EN 166)

Skin protection
Suitable protection of the body: Lab apron, boots, gloves

Environmental exposure controls
Dumping into the environment must be prevented. Refer to section 6. No further action is necessary.

Consumer exposure controls
Refer to section 7 and 8. No further action is necessary.

SECTION 9: Physical and chemical properties

9.1 Information on the basic physical and chemical properties

Appearance
State of matter: solid
Colour: colourless - white
Odour: faint scent: ammonia
Odour threshold: no information available

Safety relevant basis data

Parameter	Value	Unit	Remark
Density:	1.33	g/cm^3	20°C
Package density:	760-800	kg/m^3	
pH:	9		20°C, 100 g/L
Melting point / range:	133-134	° C	
Boiling temperature / range:			decomposes before boiling point is reached
Flash point:			not relevant
Flammability:			not flammable
Lower flammability limit:			
Upper flammability limit:			
Explosion hazard:			not relevant
Lower explosion limit:			
Upper explosion limit:			
Ignition temperature:			not relevant
Decomposition temperature:			decomposes on melting
Oxidizing characteristics:			none
Vapour pressure:	1.2 x 10^{-5}	mmHg	25°C
Relative vapour density:	2.07		air=1
Speed of vaporization/evaporation rate:			no information available

Solubility in water:	624 g/l	20°C, soluble
log P O/W (n-octanol / water):	-1.56 - -1.73	
Viscosity:		not relevant

9.2 Other information

Molecular weight: 60.06 g/mole

SECTION 10: Stability and reactivity

10.1 Reactivity

Hygroscopic: absorbs moisture from air
Reacts (violently) with substances indicated in 10.5.

10.2 Chemical stability

Hygroscopic: absorbs moisture from air
Otherwise stable under standard conditions.

10.3 Possibility of hazardous reactions

See 10.5.

10.4 Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid generation of dust. Avoid moisture.

10.5 Incompatible materials

Keep away from: oxidizing agents, strong bases, strong acids, aldehydes
Violent reaction with: gallium perchlorate
Reacts with: chlorine to form chloramines, sodium hypochlorite, sodium nitrate, calcium hypochlorite, $NaNO_2$, P_2Cl_5, nitrosyl perchlorate, strong oxidizing agents as permanganate, nitrate, dichromate, chloride

10.6 Hazardous decomposition products

Hydrogen Cyanide, Ammonia, Oxides of Nitrogen, Carbon; can be released in case of fire: Carbon dioxide (CO_2), carbon monoxide (CO), nitrogen oxides (NO_x)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Routes of entry: inhalation, ingestion. Urea is of very low toxicity by all routes investigated.

Acute toxicity, oral, rat	LD50: 14.3-15.0 g/kg bw
Acute toxicity, oral, mouse	LD50: 11.0-15.4 g/kg bw

Specific symptoms in laboratory animals
See below 11.4 and 11.5.

11.2 Irritation and etching

Irritant effect on the skin not irritating

Irritant effect on the eye	mild irritation possible
Irritant effect on the respiratory tract	Can be irritating to the respiratory tract, nose, throat followed by coughing and sneezing
Etching	not corrosive

11.3 Sensitization

No danger of sensitization.

11.4 Repeated dose toxicity

12-month carcinogenicity screening studies in rat and mouse demonstrate that urea is of very low to no chronic toxicity by the oral route. Similarly, no evidence of local or systemic toxicity was seen in 4-week and 25-week dermal toxicity studies in rat. No clear toxicity was seen in dogs administered high doses of urea by subcutaneous injection over a period 45 days.

11.5 CMR effects

Carcinogenicity	No evidence of carcinogenicity was seen in NCI screening studies in the rat and mouse.
Mutagenicity	Negative results are reported in three Ames tests. Positive results are reported in assays for mutagenicity and clastogenicity in mammalian cells, however the value of these studies are limited by the extremely high test concentrations. A positive result is reported in a mouse bone marrow assay of unconventional design, however this study is not considered to be reliable. Based on its physiological role and presence in the body at high concentrations, urea is not considered to be genotoxic.
Reproductive toxicity	No standard studies are available. It is considered extremely unlikely that occupational, primary or secondary exposure to urea will result in any effects on fertility as the levels of exposure will be insignificant compared to those present in the body as a result of protein catabolism.

SECTION 12: Ecological information

12.1 Toxicity

Ecotoxicity
Urea exhibits no to very low ecotoxicity.

Aquatic toxicity

Fish:	LC50: > 6810 mg/L (96h) (*Leuciscus idus*)
Aquatic invertebrates:	EC50: >10000 mg/L (24h) (*Daphnia magna*)
Algae:	EC10/LC10: 47 mg/L (192h) (*Microcystis aeruginosa*)
	EC10/LC10: >10000 mg/L (7d) (*Scenedesmus quadricauda*)

12.2 Persistence and degradability

Product is biodegradable.

12.3 Bioaccumulative potential

No indication of bio-accumulation potential.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

This substance does not meet the criteria for classification as PBT or vPvB.

12.6 Other adverse effects

none

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Appropriate disposal/product
Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.

Appropriate disposal/packaging
Waste disposal according to official state regulations.

Control report for waste code/ waste marking according to EWC
Consult the appropriate authorities about waste disposal.

SECTION 14: Transport information

Not classified according to the following transport regulations: ADR/RID, IMDG-Code / ICAO-TI / IATA-DGR, MARPOL 73/78 and the IBC Code.

SECTION 15: Regulatory information

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

EU-Regulations
Regulation (EC) No 1907/2006
Regulation (EC) No 1272/2008 (CLP)
Directive 67/548/EEC

Information on working limitations
Youths are only allowed to handle this product according to the regulation 94/33/EC, and as long as all effects of dangerous substances are prevented. Observe regulation 98/24/EC for employee health protection against the threat of chemical substances in the workplace. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National regulations
National legislation has to be observed!

Major Accidents Ordinance
not relevant

Storage class according to VCI (DE)
13 non-combustible solids

Water Hazard Class according to VwVwS (DE)
1 weak water pollutant (WGK 1)

Technical Instructions on Air Quality Control (TA-Luft) (DE)
relevant

15.2 Chemical safety assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

16.1 Wording of the H and R-phrases under section 2 and 3

Regulation (EC) No 1272/2008
This substance is classified as not hazardous according to Regulation (EC) 1272/2008 [GHS].

Directive 67/548/EEC
The substance is not dangerous in the sense of Directive 67/548/EEC.

16.2 Training instructions

The product should only be handled by persons, who were informed sufficiently about the dangerous nature or the product and about the necessary safety precautions.

16.3 Further remarks

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

16.4 Documentation of changes

Section 1:	Addition of identified uses and not recommended uses
Section 3:	Adjustment in table format
Section 4:	Adjustment of information on first aid measures
Section 5:	Addition / adjustment of information on extinguishing media
Section 6:	Addition / adjustment of information on accidental release measures
Section 7:	Addition / adjustment of information on safe handling and safe storage
Section 8:	Addition / adjustment of information on DNEL and PNEC values and exposure controls (occupational exposure controls, respiratory protection, hand protection, eye protection)
Section 9:	Addition / adjustment of information on physical and chemical properties
Section 10:	Addition / adjustment of information on conditions to avoid, incompatible materials, hazardous decomposition products
Section 13:	Addition / adjustment of information on disposal considerations
Section 14:	Addition / adjustment of data on transport information
Section 15:	Addition / adjustment of data on regulatory information
Section 16:	Minor adjustments

16.5 Data sources

Data arise from reference works and literature.

16.6 Key and definition

none