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1. Identification of the substance/ mixture and of the Company/business

1.1 Product identifier

EFFICIENT

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

Identified uses: Ecological slow-release nitrogen-based fertilizer, to be sprayed on leaves.
 Uses advised against: Technical information will be provided by Advachem upon request of the authorities.

1.3 Information concerning the supplier of the safety data sheet

Company:

ADVACHEM S.A.
 Route de Wallonie, Darse d'Hautrage
 B-7334 Hautrage Belgium
 Tel.: +32 65 613 200 Fax: +32 65 613 210
 Email: info@advachem.com

1.4 Emergency telephone number

Belgium 070 245 245 (Poison Control Centre)

2. Hazards identification

2.1 Classification of the substance or mixture

According to regulation (EC) 1272/2008 CLP:
Hazardous ingredients (GHS)

Not classified. The product does not contain any substance classified as hazardous in a concentration that is sufficient enough to be considered.

According to EUH208 : Contains free formaldehyde 0.02% ≤ F free < 0.1% : May produce allergic reaction

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2.2 Label elements

According to regulation (EC) 1272/2008 CLP:

Classification and label according to regulation (EC) No. 1272/2008 - CLP/GHS:

The product is not subject to the EC Directives concerning hazardous products.

According to EUH208 : Contains free formaldehyde 0.02% ≤ F free < 0.1% : May produce allergic reaction

Safety statements:

- Keep out of the reach of children.
- Keep in a closed container.
- Keep away from food and drink.
- Do not eat or drink during use.
- Do not smoke while handling.

Special labelling of certain preparations: Do not contaminate water with the product.

2.3 Other dangers

Conforms to regulation (EC) No. 1272/2008 - CLP:

No known specific hazards, if the recommendations for storage and handling are respected.

- PBT not applicable
- vPvB not applicable

3. Information on ingredients

3.1 Substances

Not concerned

3.2 Mixture

Chemical nature:

Urea-formaldehyde-ammonia polymer in water

Name of the substance	Value	CAS No.
Urea-formaldehyde-ammonia polymer	Approx. % 65	27967-29-9
Water	Approx. % 35	-

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4. First aid measures

4.1 Description of first aid measures

General advice:

Take off all contaminated clothing and shoes immediately; wash contaminated clothing and shoes before reuse.

If inhaled:

Move victim to fresh air. Oxygen or artificial respiration if necessary. Consult a doctor if breathing difficulties persist.

In case of skin contact:

Take off contaminated clothing and wash exposed skin areas with mild soap and water, and then rinse with warm water. Consult a doctor immediately.

In case of eye contact:

Rinse immediately and thoroughly with plenty of water. Retract eyelids often. Consult a doctor immediately.

If swallowed:

Rinse mouth with water. If swallowed, do not induce vomiting. Bring victim to the hospital and show this SDS to the doctor.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the paragraph "labelling" - section 2 and/or in section 11

4.3 Indication of any possible immediate medical attention and special treatment needed

Treatment: Treat according to the symptoms, see section 4.1

5. Firefighting measures

5.1 Extinguishing media

Foam, dry product, carbon dioxide, water spray.

5.2 Special hazards arising from the substance or mixture

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No particular dangers in normal use.

5.3 Advice for firefighters

Further information:

- Nearby fires:

Cool the exposed containers using water spray or fog.

- Particular risks:

An elevated temperature may release toxic gases such as carbon monoxide CO, carbon dioxide CO₂, hydrocyanic acid HCN, formaldehyde CH₂O, and nitrogen oxides (NO)_x.

- Fire protection

Do not enter the fire area without full protective clothing, including a self-contained breathing apparatus.

- Special procedures:

Exercise caution when fighting any chemical fire.

Make sure that the wastewater from the firefighting does not contaminate the environment.

- Flammability class: Non-flammable

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all contact with skin, eyes, and clothing. Handle in conformance with good hygiene and safety practices. Information concerning personal protective measures are found in section 8.

6.2 Environmental precautions

Prevent entry into sewers and drinking water or into public waters. Assure conformity with the local regulations before discharging into sewage treatment facilities. Inform the competent authorities.

6.3 Methods and materials for containment and cleaning up

Clean up any spills as soon as possible, using an absorbent material to collect it.

Use adequate disposal containers.

The spills will be handled by qualified cleaning personnel, equipped with adequate respiratory and eye protection.

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6.4 Reference to other sections

Other information concerning the control of exposure and personal protection, as well as considerations on handling, are found in sections 8 and 13.

7. Handling and storage

7.1 Precautions for safe handling

Handle in conformity with good hygiene and safety practices. Inform workers on the possible hazard that can be caused by the emanation of formaldehyde and ammonia during "processing".
Protection against fire and explosion: No specific precautions

7.2 Conditions for safe storage, including any possible incompatibilities

Assure general extraction or ventilation of the premises in order to reduce the concentration of vapours. Keep the storage area around 20°C. Provide a retention tank. During the implementation of the product, wear approved respiratory protection equipment.

Stability in storage: This product is chemically stable and may be kept for a long time (approximately 2 years) if stored at a temperature between +10 and 30°C in closed containers or storage devices. If, by mistake, it is stored at a temperature lower than 0°C, or if it is put into contact with other chemical products, the start of polymerisation may begin and flocculation at the bottom of the container or an increase in viscosity may appear. Check the development of the temperature, the pH and the viscosity during the course of the extended storage. During the implementation of the product, wear approved respiratory protection equipment.

Storage materials:

Stainless steel or protected steel with an epoxy resin. Forbidden: copper, ordinary steel, and aluminium.

Incompatible products: acids.

Handling:

This product is not hazardous, however, it is to be handled according to good industrial hygiene and safety procedures. Ensure prompt removal from eyes, skin and clothing. Wash hands and any other exposed area with mild soap and water, before eating, drinking, and smoking and before leaving work. Provide appropriate ventilation and evacuation at the equipment level. Provide showers and eye showers.

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7.3 Specific end uses

For the relevant identified uses indicated in section 1, observe the advice given in section 7.

8. Exposure controls/Personal protection

8.1 Control parameters

The product contains residual monomers. The corresponding exposure limit value for occupational exposure must be respected.

50-00-0: Formic aldehyde < 0.1% in the mixture

Exposure limit values for exposure to formaldehyde (European Countries):

- TWA (Time Working Average over 8 hours) 0.38 mg / m³; 0.30 ppm:
- STEL (Short Term Exposure Limit over 15 min.) 0.6 ppm

The controls must be assured when the concentrations in the air are able to exceed their exposure limit values. The ventilation must be sufficient to remove and prevent accumulations of vapours generated during manufacturing or handling.

8.2 Exposure controls

Personal protective equipment

-Personal protection: In general, avoid any unnecessary exposure. The control and handling must be carried out by qualified personnel.

-Respiratory protection: In case of risk of excessive exposure, wear an appropriate mask.

-Hand protection: Wear appropriate, chemical-resistant gloves.

-Skin protection: If contact with skin or contamination of clothing is possible, wear protective clothing.

-Eye protection: Anti-splash glasses or safety glasses.

-If swallowed: Do not eat, do not drink, and do not smoke during use.

-Industrial hygiene: Emergency eye showers must be installed near any area where there is a risk of exposure.

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9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Clear, limpid
Odour	: Light odour of formaldehyde
pH	: 9 – 11 (25 °C)
Density	: 1.10 – 1.40 (20 °C)
Viscosity	: 10 – 40 mPa.s (25 °C)
Dry extract (%)	: 63 - 67
Solubility in water	: Soluble product in water
Flash point (°C)	: Not applicable

9.2 Other information

None

10. Stability and reactivity

10.1 Reactivity

No hazardous reactions if stored and handled according to the advice and recommendations.

10.2 Chemical stability

The product is chemically stable under the recommended storage conditions (10 - 30°C).

10.3 Possibility of hazardous reactions

During the action of acids or through heating, there may be emanations of formaldehyde, which may act as a sensitizer and irritant.

10.4 Conditions to avoid

Exposure to elevated temperatures or contact with strong acids may cause polymerisation - non explosive - of the fertilizer.

10.5 Incompatible materials

Substances to avoid:

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Organic peroxides, strong bases, strong acids, acid anhydrides, amino derivatives, phenols...

10.6 Hazardous decomposition products

Thermal decomposition may generate formaldehyde and carbon monoxide CO, CO₂, ammonia, nitrogen oxides, and hydrocyanic acid.

Hazardous reaction: Reacts with strong oxidisers.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

If inhaled: By reason of its composition, EFFICIENT must not be considered toxic if inhaled;

If swallowed: By reason of its composition, EFFICIENT must not be considered toxic if swallowed; ingestion may cause irritation of mucous membranes and gastro-intestinal problems.

DL (50) rat (oral): No data available.

In case of skin contact: It must not be considered as an irritant for the skin; but if there is prolonged or repeated contact, there is a possibility of irritation.

In case of eye contact: It must not be considered as an irritant for the eyes; but if there is prolonged or repeated contact, there is a possibility of irritation.

Chronic toxicity:

Repeated exposure if inhaled: At strong concentrations of vapours/fog, local irritation at a respiratory level and the odour of ammonia are possible.

Specific effects: CONCERNED SUBSTANCE: FORMALDEHYDE (<0.1% in the product)

Genotoxicity: Formaldehyde is classified as a Mutagen Category 2.

Carcinogenesis: Formaldehyde is classified as a Carcinogenic Category 1B.

Reproductive toxicity:

Fertility: No proven toxic effects on fertility.

Foetal development: Absence of birth defects and embryo toxic effects at non-toxic doses to mothers.

12. Ecological information

12.1 Toxicity

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Evaluation of aquatic toxicity:

There is a high probability that the product is not harmful to aquatic organisms.

Toxicity for fish:

- LC50 (96h): > 10,000 mg/L
- EC50 (48h): > 10,000 mg/l daphnia magna
- NOEC: 47 mg/l- Algae [mg/l]

12.2 Persistence and degradability

Persistence and degradability: Easily biodegradable

12.3 Bioaccumulative potential

Low bioaccumulative potential

12.4 Mobility in soil

Mobility study between various environmental areas:

No data available.

12.5 Results of PBT and vPvB assessment

The product does not contain any substance fulfilling PBT criteria (persistent/Bio accumulative/Toxic) or vPvB criteria (very Persistent / very Bio accumulative).

12.6 Other adverse effects

The product does not contain any substances that are listed in the regulation (EC) 1005/2009 on substances that destroy the ozone layer. The product does not contain any substances that are listed in appendix I of the regulation (EC) 2037/2000 on substances that destroy the ozone layer.

13. Measures relative to disposal

13.1 Waste treatment methods

Dispose of this product at a chemical waste collection centre. Destroy in conformity with the local/national regulations in force.

14. Transport information

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According to the regulations: ADR / RID / IMDG / IATA / ADN

14.1 UN number

UN number: Does not apply

14.2 United Nations proper shipping name

Proper shipping name (ADR): Not applicable
 Proper shipping name (IATA): Not applicable
 Proper shipping name (ADN): Not applicable
 Proper shipping name (RID): Not applicable

14.3 Hazardous classes for transport

EFFICIENT is not ADR classified

14.4 Packing group : Not applicable

14.5 Hazards for the environment : Not applicable

14.6 Particular precautions to be taken by the user : Unknown

14.7 Transport in bulk in conformity with appendix II of the MARPOL 73/78 convention and with the IBC code

No data available

15. Regulatory information

15.1 Regulations/legislation particular to the substance or to the mixture with regard to safety, health, and the environment

Classification and labelling were determined according to regulation (EC) 1272/2008, concerning preparations by considering the planned uses of the product.
 Delivery by IBC of 1,000 litres or by bulk tank-truck. Product not ADR/ADNR/RID/IATA classified

Safety statements:

- Keep out of the reach of children.
- Keep in a closed container.

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- Keep away from food and drink.
- Do not eat or drink during use.
- Do not smoke while handling.

Special labelling of certain preparations: Do not contaminate water with the product.

Others: Transport at a temperature not exceeding 35°C.

For any advice on essential preventive measures, see sections 7 and 8 of the safety data sheet.

15.2 Chemical Safety Assessment

Does not apply

16. Other information

Classification according to EC regulation 1272/2008:
The product is not subject to the CLP classification

According to EUH208 : Contains free formaldehyde 0.02% ≤ F free < 0.1%: May produce allergic reaction

Abbreviations and acronyms:

- ADR: European Agreement concerning the international carriage of Dangerous Goods by Road
- CAS: Chemical Abstract Service (division of the American Chemical Society)

Warning and liability:

This sheet is relative to a non-hazardous product. The content and the format of this material safety data sheet, which are in conformity with Directives 1907/2006/EC of the Commission of the EEC and its amendment (EU) 2015/830, therefore do not apply but were used here as a writing outline.

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