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

1.1. Product identifier	Arelon L
1.2. Relevant identified uses of the substance or mixture and uses advised against	Herbicide
1.3. Details of the supplier of the safety data sheet	Arysta LifeScience S.A.S. BP 80 - Route d'Artix 64150 Noguères - France Tel. : + 33 (0)5 59 60 92 92 Fax. : + 33 (0)5 59 60 92 99 Contact : support_msds_eame@arystalifescience.com Web Site : http://www.arystalifescience.eu/en/
1.4. Emergency telephone number	European emergency number: 112
National emergency services No.: Austria +431 406 43 43 Belgium +32 70 245 245 Bulgaria +359 2 9154 409 Czech republic +420 224 919 293, +420 224 915 402 Denmark 82 12 12 12 Estonia 112, or 16662 (+372 626 93 90 from abroad) Finland (09) 471 977 (direct) or (09) 4711 (exchange) France +33 (0)1 45 42 59 59 Hungary +36 80 20 11 99 Ireland + 353 (0)1 809 2566 Lithuania +370 5 236 20 52 or +370 687 53378 Malta 2545 6504 Norway 22 59 13 00 Portugal 808 250 143 Romania 021.318.36.06 Slovakia +421 2 5477 4166 Spain + 34 91 562 04 20 Sweden 08-331231 United Kingdom 0870 243 2241	

SECTION 2: Hazards identification

2.1. Classification of the mixture

Classification according to Regulation (EC) 1272/2008 "CLP"


Carc. Car. 2, H351
Aquatic acute cat.1, H400
Aquatic Chronic cat.2, H410

Classification according to Directive 1999/45/EC "DPD"

R40: Limited evidence of carcinogenic effects
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Most important adverse effects

Physical and chemical hazards	None
Health hazards	Carc.2, H351, suspected of causing cancer Refer to Sections 4.2 and 11 for more details.
Environmental hazards	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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2.2. Label elements

Voluntary labelling according to Regulation (EC) 1272/2008 "CLP" (#)

Hazard pictogram(s)



Signal word(s)

Warning

Hazard statement(s)

H351: Suspected of causing cancer
H410: Very toxic to aquatic life with long lasting effects
EUH210: Safety data sheet available on request.
EUH401: To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary statement(s)

P102: Keep out of reach of children.
P201 : Obtain special instructions before use
P270 : Do not eat, drink or smoke when using this product
P272 : Contaminated work clothing should not be allowed out of the workplace
P273: Avoid release to the environment.
P280 : Wear protective gloves/protective clothing/eye protection/face protection
P308+P313: IF exposed or concerned: get medical advice/attention
P363 : Wash contaminated clothing before reuse
P391: Collect spillage.
P501: Dispose of contents/container to a licensed professional, according to national regulations.

SP phrase (s)

SP1: Do not contaminate water with the product or its container (Do not clean application equipment near surface water / Avoid contamination via drains from farmyards and roads).
Spo2: Wash all protective clothing after use.
SPe3: To protect aquatic organisms, respect an unsprayed buffer zone of 20 m to surface bodies.

2.3. Others hazards

The mixture contains a surfactant. Slippery in case of accidental release. Persistent foam can be formed.

SECTION 3: Composition/information on ingredients

Mixture


Suspension concentrate (SC), containing Isoproturon (500 g/L) and surfactants.
Isoproturon belongs to the family of phenylurea compounds.

Dangerous substances	Classification		Concentration (%m/m)	Concentration (g/L or g/kg)
	Regulation (EC) 1272/2008	Directive 67/548/EEC		
Isoproturon 3-(4-isopropylphenyl)-1,1-dimethylurea CAS No. 34123-59-6 EC No. 251-835-4 Index No 006-044-00-7 (CLH)	Carc. 2 Aquatic Acute 1 Aquatic Chronic 1 H351 H400 H410	Carc. Cat. 3; Xn; R40 N; R50-53	45% about	500 g/L

For the complete text of H statements and R phrases, please refer to section 16.

Refer to Section 8 for OELs. Refer to Section 12 for PBT assessment.

(#) point modified at last update

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SECTION 4: First aid measures

4.1. Description of first aid measures The mixture is not classified as hazardous for human health. Measures below are recommended as a general rule.

In general Remove the affected person from the danger zone to a well-ventilated room or to fresh air, and protect from chilling. Do not administer anything by oral route and do not try to make vomit, call a treatment center for poisoning cases or a doctor. Take the label or this SDS where possible.

After Inhalation Immediately remove to fresh air. Call rescue in case of respiratory difficulty, unease or persistent headaches.

After eye contact Rinse immediately and thoroughly with plenty of water during at least 10 to 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if pain or redness persists.

After skin contact Remove contaminated clothing and thoroughly wash the affected parts of the body with soap and water.

After Ingestion Do NOT induce vomiting, and do NOT give anything to drink. Call rescue and show the label.

4.2. Most important symptoms and effects, both acute and delayed

In humans, only transient discomfort is anticipated. Symptoms of overexposure may include activity decrease, cough, laboured breathing (with possible pulmonary involvement), nosebleed, headache, nausea, tearing, redness and pain in eyes, vision disturbances.

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


Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media Suitable: Water spray, foam, dry chemical powder.
Unsuitable: Water jet.

5.2. Special hazards arising from the substance or mixture By thermal decomposition, possibility of formation of toxic gases (phosphorus oxide, nitrogen oxide, carbon oxides, ammoniac, traces of nitriles).

5.3. Advice for fire-fighters Intervention personnel should wear mask and individual respiratory equipment. The mixture is DANGEROUS FOR THE ENVIRONMENT: retain water or extinguishing media and eliminate safely.


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SECTION 6: Accidental release measures



- | | |
|--|---|
| 6.1. Personal precautions, protective equipment and emergency procedures | Wear protective adapted equipment and take back non protected people.
Withdrawal combustion and ignition sources. |
| 6.2. Environmental precautions | The mixture is DANGEROUS FOR THE ENVIRONMENT:
Avoid and protect sewage, surface water, ground water and soil contamination.
Retain spilled liquids and collect them with sand or other absorbent inert material (sepiolite).
Absorbent inert material stocks have to be sufficient to face reasonably predictable spillage.
Do not throw washing waters into sewers.
In the case of spillage into water, stop dispersion of the product with adequate barrier.
Contact competent authorities when a situation cannot be controlled rapidly and efficiently. |
| 6.3. Methods and material for containment and cleaning up | Collect contaminated products on the surface concerned, transfer to closed drums before sending in a specialized incineration treatment center.
Wash the contaminated surface with water and collect washing waters for treatment.
Cover the contaminated zone using absorbent materials such as sand or sepiolite. |
| 6.4. Reference to other sections | See section 8 for personal protection and section 13 for disposal considerations. |


SECTION 7: Handling and storage

- | | |
|---|--|
| 7.1. Precautions for safe handling | Do not eat, drink or smoke when using.
Wear appropriate protective clothes, adequate gloves (nitril), glasses or mask.
Avoid all contact of skin, eyes or clothes with new or old product.
Respect good hygienic body conditions and cleanliness of the working area.
Wash hands abundantly after handling.
Do not wash working clothes with household linen.
Work upwind. |
| 7.2. Conditions for safe storage, including any incompatibilities | Keep away from food, drink and animal feedingstuffs.
Store in the original well closed container, in a fresh and well ventilated place.
Store under cover, in an appropriate room, away from heat and sources of fire, at temperature <35°C.
Do not store in room at temperature below –5°C. |
| 7.3. Specific end uses | When using refer in priority to information written on the label. |

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters	Occupational Exposure Limit values: No existing community OELs for the known ingredients. Not on the substances list of INRS ED 984 Additional exposure limits under the conditions of use: <i>Isoproturon</i> AOEL = 0.015 mg/kg b.w./d (isoproturon) ADI = 0.015 mg/kg b.w./d (isoproturon) ARfD: Not allocated, not necessary (isoproturon)
8.2. Exposure controls	Prepare tank mix in a well-ventilated area. A default re-entry interval in the field of 6 hours is recommended, until the treatment has dried. (France)
Appropriate engineering controls	
Individual protection measures, such as personal protective equipment	
Respiratory protection	Preferably wear a mask covering all face with filter appropriate to organic vapor, powder or aerosol. A.P. Type filters.
Hand protection	Wear impervious gloves, resistant to organic solvents and to chemical products (complying with EN 374 standard), during mixing/loading and application phases. 
Eyes protection	Preferably wear a mask, a face screen or protective glasses.
Skin protection	Wear appropriate protective clothes, covering all parts of the body, during application phase for spot treatment with hand-held sprayer.  Slip-resistant shoes or boots are recommended.
Environmental exposure controls	Comply with European and National Regulations relating to environment. Only prepare the application volume required for immediate use. Do not apply pesticides outdoors when rain is forecast or when it is windy out. Pay particular attention to the protection of the groundwater in vulnerable areas. To protect aquatic organisms and non-target arthropods, respect an unsprayed buffer zone of 5 m to surface bodies and adjacent crops. PNEC = 60 µg/L (France)

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Cream white viscous liquid (suspension).
Odour	Specific smell.
pH	7-8
Melting /freezing point	(no data on the mixture)
Boiling point / range	>100°C.
Flash point	No FP observed up to 100°C. (EC A9). Not classified as a flammable liquid.
Evaporation rate	Not applicable since IPU 500 is a mixture. (no data on the a.s.)
Flammability (solid, gas)	Flammability as such not applicable, as liquid, refer to Flash Point.
Upper/lower flammability or explosive limits	(no data on the mixture)
Vapour pressure	Not applicable since IPU 500 is a mixture. <i>Isoproturon</i> 2.8 – 8.1 x 10 ⁻⁶ Pa at 20°C
Vapour density	Not applicable since IPU 500 is a mixture. (no data on the a.s.)
Relative density	About 1.1 g/mL (EC A3)
Solubility	
- Water	Miscible with water in all proportions. Gives stable suspension.
- Organic solvents	Not miscible with almost all organic solvents.
Partition coefficient n-octanol/water	Not applicable since IPU 500 is a mixture. <i>Isoproturon</i> log K _{ow} = 1.46 x 10 ⁻⁵ at 20°C
Auto-ignition temperature	475°C (EC A15)
Decomposition temperature	(no data on the mixture)
Viscosity	148 ± 3.2 mPa.s; D: 418 s ⁻¹ Test t°C = 20°C Measuring Bob Z2 DIN
Explosives properties	No explosive nor self-reactive properties anticipated, based on the chemical structure of the ingredients. Risks of explosion almost none in the recommended conditions of storage (see Section 7).
Oxidising properties	No oxidising properties anticipated, based on composition.

9.2. Other information

None.

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SECTION 10: Stability and reactivity

10.1. Reactivity	No pyrophoric or self-heating properties, nor release of flammable gas if contact with water, anticipated.
10.2. Chemical stability	Stable for at least 2 years, at ambient temperature, in the original packaging.
10.3. Possibility of hazardous reactions	May attack metal containers with hydrogen release.
10.4. Conditions to avoid	Avoid storage at temperature > 35°C in a confined place.
10.5. Incompatible materials	Avoid storage in containers made of light metals and alloys, especially iron, galvanized steel, copper, zinc, aluminium, lead, zinc and tin. Avoid contact with strong oxidants and strong reducing agents.
10.6. Hazardous decomposition products	See point 5 for combustion products.

SECTION 11: Toxicological information


Based on available studies performed with the formulated product, ARELON L does not have any acute toxicological effects.

According to the toxicological properties of isoproturon, harmful effects on the health of operators, bystanders, workers or consumers are not to be expected when the products are used in accordance with good plant protection practice.

The available data for isoproturon do not support evidence of genotoxicity, reproductive toxicity or developmental toxicity for the active substance. Regarding the carcinogenic potential (liver tumours) of isoproturon in rats, it is to state that a clear NOAEL was established. Thus, since there is no evidence for a genotoxic mechanisms of carcinogenesis, the potential health risk is considered to be acceptable

Information presented here below refers to experimental studies on the mixture, unless otherwise specified. Additional data on the active substance and the ingredients is provided where relevant.

Acute toxicity by ingestion	Not harmful if swallowed LD ₅₀ > 5000 mg/kg b.w. (rat) (OECD 401)
by skin contact	Not harmful in contact with skin LD ₅₀ > 4000 mg/kg b.w. (rat) (OECD 402)
by inhalation	LC50 (4 h) > 1.34 mg/L air (rat) (OECD 403)
Skin corrosion/irritation	Not classified as skin irritant (rabbit) (OECD 404) .
Serious eye damage/irritation	Not classified as eye irritant (rabbit) (OECD 405).
Respiratory or skin sensitisation	Not classified as skin sensitiser (guinea-pig) (OECD 406, GPMT). Not classified as respiratory sensitiser (respiratory sensitisation is unlikely to occur).
Germ cell mutagenicity	Not mutagenic based on a by-constituent approach.
Carcinogenicity	With regard to the carcinogenic activity of IPU in rats, the classification Carc. 2 of IPU has already been agreed at Community level


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Reproductive toxicity	No evidence of reprotoxicity (fertility and teratogenicity) based on a by-constituent approach.
STOT-single exposure	No evidence of damage to organs after single exposure by oral and dermal routes. Not classified for respiratory tract irritation or narcotic effect based on a by-constituent approach.
STOT-repeated exposure	No evidence of damage to organs after repeated exposure based on a by-constituent approach.
Aspiration hazard	Not applicable (no hydrocarbon solvent).

SECTION 12: Ecological information

Information presented here below refers to experimental studies on the mixture, unless otherwise specified. Additional data on the active substance is provided where relevant.

12.1. Toxicity	The mixture is classified as DANGEROUS FOR THE ENVIRONMENT, very toxic to aquatic life with long lasting effects. Provided the recommended conditions of use are respected, no unacceptable risk to non-target fauna and flora is anticipated.		
Aquatic organisms	Acute effects are anticipated from the results of the studies. Classification for Aquatic Chronic toxicity is determined with the calculation method, from data on components, according to Reg.(EC) N°1272/2008 "CLP".		
	Fish	Acute (96h)	LC ₅₀ (<i>Oncorhynchus mykiss</i>) = 309-556 mg formulation/L
		Chronic	Not required for the mixture.
	Invertebrates	Acute (48h)	EC ₅₀ (<i>Daphnia magna</i>) > 1000 mg formulation/L
		Chronic	Not required for the mixture.
	Algae	Acute (72h)	EC _{b50} (<i>Scenedesmus subspicatus</i>) = 78 µg formulation/L
		Chronic (72h)	NOECr (<i>Anabaena flos-aquae</i>) = 22 µg formulation/L
	Aquatic plants	Acute (14 d)	<i>Isoproturon</i> EC ₅₀ (<i>Lemna gibba</i>) = 0.031 mg a.s./L
Terrestrial organisms	Birds	Acute	<i>Isoproturon</i> LD ₅₀ = 2268 (geometric mean) mg/kg b.w
		Short-term	<i>Isoproturon</i> LC ₅₀ > 500 ppm in feed
		Reproduction	<i>Isoproturon</i> NOEC = 20 mg/kg bw/d
	Bees	Oral	LD ₅₀ > 100 µg a.s. /bee
		Contact	LD ₅₀ > 127.5 µg a.s./bee

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Other arthropods

Predatory mites	extended test, 14 d	LR ₅₀ (<i>Typhlodromus pyri</i>) > 3240 g a.s./ha LR ₅₀ (<i>Aphidius rhopalosiphii</i>) > 3240 g a.s./ha
Parasitoid	extended test, 14 d	

Earthworms	Acute (14 d)	LC ₅₀ (<i>Eisenia fetida</i>) > 1000 mg formulation/kg dry soil
	Chronic	Not required for the mixture.

Micro-organisms	Nitrogen mineralization :	No effects up to 12.5 kg a.s./ha
	Carbon mineralization :	No effects up to 12.5 kg a.s./ha

Non-target plants	Seedling emergence	ER ₅₀ (<i>Lycopersicon esculentum</i>) > 75 g a.s./ha
	Vegetative vigor	ER ₅₀ (<i>Lycopersicon esculentum</i>) = 109 g a.s./ha


12.2. Persistence and degradability	In soil	<i>isoproturon</i> DT ₅₀ lab (aerobic) = 7.2 to 18.2 days (20°C) – 1 st order; mean 12.6 days; median 11.9 days DT ₅₀ field = 12-33 days
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In water	<i>Isoproturon</i> Considered as not readily biodegradable. DT ₅₀ water/sediment = 20 to 61 days
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In air	<i>Isoproturon</i> Vapour pressure = 2.8 – 8.1 x 10 ⁻⁶ Pa at 20°C Henry's law constant = 1.46 x 10 ⁻⁵ Pa m ³ mol ⁻¹ . Low volatilization potential for the a.s. Photochemical oxidative degradation: DT ₅₀ = 3-4.7 h (Frank & Klöpffer estimation)
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12.3. Bioaccumulative potential	No bioaccumulation is anticipated for the a.s. (log Kow < 4) No significant risk to terrestrial vertebrates is anticipated through secondary poisoning.
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12.4. Mobility in soil	With a Koc = 36-241 mL/g, isoproturon is mobile in soil. Surface tension of the mixture: 71.5 mN/m at 1.75% solution (EC A5). Considered to be non surface-active.
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12.5. Results of PBT and vPvB assessment


Isoproturon and all constituents (>0.1%) does not fulfil REACH PBT/vPvB criteria.

12.6. Other adverse effects


The mixture contains a surfactant. Persistent foam can be formed.

SECTION 13: Disposal considerations

13.1. Waste treatment methods	Unusable products, out of date and residues are considered as HAZARDOUS WASTE according to Directive 2008/98/EC.
Product/packaging	Disposal of important amounts must be made by duly authorized specialists. Incineration should be made in authorized and specialized plant. Eliminate the product and its packaging with care and in a responsible way. Do not throw near ponds, rivers, ditches or into sewers. Wash contaminated surfaces with water and collect washing waters for treatment. Make sure that local Regulations are respected.
Washing products	Rinse containers with water and pour into the spray tank. Do not throw into sewer. Do not contaminate natural waters. Clean up application materials on the treated area and eliminate waters by spraying on one area.
Waste Code	07 WASTES FROM ORGANIC CHEMICAL PROCESSES 07 04 wastes from the manufacture, formulation, supply and use (MFSU) of organic plant protection products

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SECTION 14: Transport information

REGULATION	RID/ADR (TERRESTRIAL)	IMDG (MARITIME)	OACI/IATA (AERIAL)
UN NUMBER	3082	3082	3082
TRANSPORT HAZARD CLASS(ES)	9 (M6)	9	9
PACKING GROUP	III	III	III
ENVIRONMENTAL LABEL	Y	Y	Y
MARKING AND LABELLING			
UN PROPER SHIPPING NAME	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (ISOPROTURON)		

SECTION 15: Regulatory information

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

- Isoproturon is approved for use in plant protection products as listed in Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the list of approved active substances for use in plant protection products.
- In addition, isoproturon is not subject to:
 - Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer,
 - Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC,
 - Regulation (EC) No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals),
 - Decision No 2455/2001/EC of the European Parliament and of the Council of 20 November 2001 establishing the list of priority substances in the field of water policy and amending Directive 2000/60/EC.
- All the other compounds are regulated by **Regulation (EC) No. 1907/2006 (REACH)**.

National information on the regulatory status of the mixture

- The placing of IPU 500 on the market as a plant protection product is subject to authorization by Member States under Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009.


Other prescriptions

To avoid risks to man and the environment, comply with the instructions for use (Directive 1999/45/EC, Article 10, n° 12).

Storage classification (ICPE) : 1172 (French Regulation)

15.2. Chemical safety assessment

The placing of IPU 500 on the market as a herbicide is subject to evaluation and authorization by Member States under Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009.

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SECTION 16: Other information

- a) Revisions: Changes made to the previous version of the safety data sheet are marked with the symbol .
- b) Abbreviations and acronyms used in the safety data sheet:
- ADI: Acceptable Daily Intake
 - AOEL: Acceptable Operator Exposure Level
 - ARfD: Acute Reference Dose
 - CLH: Classification and Labelling, Harmonised (Annex VI to CLP Regulation)
 - CLP: Classification, Labelling and Packaging
 - DPD: Dangerous Preparations Directive
 - DT₅₀: Period required for 50 percent dissipation (define method of estimation)
 - DT₉₀: Period required for 90 percent dissipation (define method of estimation)
 - EC₅₀: Median effective Concentration
 - Koc: adsorption coefficient
 - LC₅₀: Lethal Concentration, median
 - LD₅₀: Lethal Dose, median
 - NOAEL/NOEL: No Observed (Adverse) Effect Level
 - NOEC: No Observed Effect Concentration
 - OEL: Occupational Exposure Limit
 - PNEC: Predicted No Effect Concentration
 - STOT: Specific Target Organ Toxicity
 - TLV-TWA: Threshold limit value - Time weighted average
 - TLV-STEL: Threshold limit value - Short-term exposure limit
- c) Key literature references and sources for data:
- Applicant's registration dossier.
 - Review Report for the active substance Isoproturon (European Commission), SANCO/3045/99-final, 12/03/2002
 - Suppliers' SDS. Published data.
- d) Methods of evaluating information, referred to in Article 9 of Regulation (EC) No 1272/2008, used for the purpose of classification:
- by testing on the parent mixture and/or extrapolation from similar for acute health and ecotoxicological effects,
 - by calculation for sub-chronic and chronic effects on health, and environmental chronic hazards.
- e) List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements which are not written out in full under Sections 2 to 15;
- | | |
|----------------------------------|--------------------------|
| <u>Hazard statements text</u> | <u>Risk phrases text</u> |
| H400: Very toxic to aquatic life | / |
- f) Advice on any training appropriate for workers to ensure protection of human health and the environment.
- For agriculture use, please follow the Good Agricultural Practices and the instructions written on the label.
Comply with national implementation of Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work.

This MSDS completes technical use sheets but does not replace them. Information herein is based on our present knowledge concerning the product, at the edition date. It is honestly given.

The attention of users is drawn to potential risks taken when the product is used for other uses than those for which it is made.

The user has to know and comply with all regulations concerning its activity.

It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

The aim of all the regulations mentioned is to help the person concerned to comply with the rules which are his own responsibility. This listing cannot be considered as exhaustive. The person concerned has to make sure that he has no other obligations due to texts specific to particular applications.