X-DUTY CLEANER (EU)

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet (Conforms to Regulation (EC) No 1907/2006) (REVIEW)
Issue Date: 21-Sep-2007

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CD 2007/3

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: X-DUTY CLEANER (EU)

SUPPLIER

Company: Dry-Treat Ltd Ltd
Address:
3 North Street
Oatby
Leicester, LE2 5AH
GBR
Telephone: +61 2 9954 3211
Telephone: 0800 0964 760
Emergency Tel: Outside USA +1 (813) 248 0585
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PRODUCT USE

Cleaner for tile, stone, paving and grout.

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A DANGEROUS SUBSTANCE ACCORDING TO DIRECTIVE 1999/45/EC AND ITS AMENDMENTS.

HAZARD RATINGS

		Min	Max
Flammability:	0		
Toxicity:	2		
Body Contact:	2		
Reactivity:	1		
Chronic:	2		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

RISK

Risk Codes	Risk Phrases
R22	Harmful if swallowed.
R36/38	Irritating to eyes and skin.
R67	Vapours may cause drowsiness and dizziness.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	INT HAZ	%
gamma-butyrolactone EC NO: 202-509-5 **R CODES:** R22, R36, R67	96-48-0	Xn	30-60
N-methyl-2-pyrrolidone EC NO: 212-828-1 **R CODES:** R36/38	872-50-4	Xi	10-30
other ingredients not contributing to the classification			balance

Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- The material is not readily combustible under normal conditions.
- However, it will break down under fire conditions and the organic component may burn.
- Not considered to be a significant fire risk.
- Heat may cause expansion or decomposition with violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.

Combustion products include: carbon dioxide (CO2), nitrogen oxides (NOx), sulfur oxides (SOx), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
PVC chemical resistant type.
Respirator:
Type AK- P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
Slippery when spilt.
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS
Slippery when spilt.
Moderate hazard.
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)
The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

gamma-butyrolactone	500 mg/m³
N-methyl-2-pyrrolidone	400 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

gamma-butyrolactone	40 mg/m³
N-methyl-2-pyrrolidone	50 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

gamma-butyrolactone	6 mg/m³
N-methyl-2-pyrrolidone	15 ppm

The threshold concentration below which most people. will experience no appreciable risk of health effects:

gamma-butyrolactone	2 mg/m³
N-methyl-2-pyrrolidone	10 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according exceed the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Toxic (T)	>= 3.0%
R51	>= 2.5%	Corrosive (C)	>= 5.0%
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	X	+	X	0	+

X: Must not be stored together
O: May be stored together with specific preventions
+: May be stored together

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

DO NOT allow clothing wet with material to stay in contact with skin.

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC
UK Workplace Exposure Limits (WELs)	N-methyl-2-pyrrolidone (1-Methyl-2-pyrrolidone)	25	103	309	75			

The following materials had no OELs on our records

• gamma-butyrolactone:	CAS:96-48-0

MATERIAL DATA

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.
OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk

of overexposure.

INGREDIENT DATA

GAMMA-BUTYROLACTONE:
No exposure limits set by NOHSC or ACGIH.
N-METHYL-2-PYRROLIDONE:
Reports of skin and eye irritation and chronic headaches have been reported in workers exposed to 1-methyl-2-pyrrolidone. The Australian ES is based on a 10-fold uncertainty factor of the no-observable-adverse-effect level (NOAEL) of 24 ppm where adverse respiratory effects were observed in a 4-week inhalation study in rats.

PERSONAL PROTECTION

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
Wear safety footwear or safety gumboots, eg. Rubber.
NOTE: The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity,

are important in the selection of gloves.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS
General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
Liquid.
Mixes with water.

Molecular Weight: Not Applicable	Boiling Range (°C): Not Available
Melting Range (°C): Not Available	Specific Gravity (water=1): 0.90
Solubility in water (g/L): Miscible	pH (as supplied): Not Available
pH (1% solution): Not Available	Vapour Pressure (kPa): Not Available
Volatile Component (%vol): Not Available	Evaporation Rate: Not Available
Relative Vapour Density (air=1): Not Available	Flash Point (°C): Not Applicable
Lower Explosive Limit (%): Not Applicable	Upper Explosive Limit (%): Not Applicable
Autoignition Temp (°C): Not Applicable	Decomposition Temp (°C): Not Available
State: Liquid	Viscosity: Not Available

APPEARANCE
Clear liquid with a characteristic odour; dispersible in water.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS
ACUTE HEALTH EFFECTS

SWALLOWED
Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.
EYE
There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain. There may be damage to the cornea. Unless treatment is prompt and adequate there may be permanent loss of vision. Conjunctivitis can occur following repeated exposure.
Direct eye contact with some anionic surfactants in high concentration can cause severe damage to the cornea. Low concentrations can cause discomfort, excess blood flow, and corneal clouding and

swelling. Recovery may take several days.

SKIN

This material can cause inflammation of the skin on
contact in some persons.
The material may accentuate any pre-existing dermatitis condition.
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
Anionic surfactants can cause skin redness and pain, as well as a rash. Cracking, scaling and blistering can occur.
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation.

INHALED

The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.
Inhalation hazard is increased at higher temperatures.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and by inhalation of vapours especially at higher temperatures.
Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.
Exposure to sulfonates can cause an imbalance in cellular salts and therefore cellular function.
Airborne sulfonates may be responsible for respiratory allergies and, in some instances, minor dermal allergies.

TOXICITY AND IRRITATION

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

MATERIAL	CARCINOGEN	MUTAGEN	REPROTOXIN	SENSITISER	SKIN
gamma-butyrolactone	IARC:3				

CARCINOGEN
IARC: International Agency for Research on Cancer (IARC)
Carcinogens: gamma-butyrolactone Category: 3

Section 12 - ECOLOGICAL INFORMATION

Octanol/water partition coefficients cannot easily be determined for surfactants because one part of the molecule is hydrophilic and the other part is hydrophobic. Consequently they tend to accumulate at the interface and are not extracted into one or other of the liquid phases. As a result surfactants are expected to transfer slowly, for example, from water into the flesh of fish. During this process, readily biodegradable surfactants are expected to be metabolised rapidly during the process of bioaccumulation. This was emphasised by the OECD Expert Group stating that chemicals are not to be considered to show bioaccumulation potential if they are readily biodegradable.
Several anionic and nonionic surfactants have been investigated to evaluate their potential to bioconcentrate in fish. BCF values (BCF - bioconcentration factor) ranging from 1 to 350 were found. These are absolute maximum values, resulting from the radiolabelling technique used. In all these studies, substantial oxidative metabolism was found resulting in the highest radioactivity in the gall bladder. This indicates liver transformation of the parent compound and biliary excretion of the metabolised compounds, so that "real" bioconcentration is overstated. After correction it can be expected that "real" parent BCF values are one order of magnitude less than those indicated above, i.e. "real" BCF is <100. Therefore the usual data used for classification by EU directives to determine whether a substance is "Dangerous to the "Environment" has little bearing on whether the use of the surfactant is environmentally acceptable.
Linear alkylbenzene sulfonates are generally biodegradable.
DO NOT discharge into sewer or waterways.
Refer to data for ingredients, which follows:
GAMMA-BUTYROLACTONE:
DO NOT discharge into sewer or waterways.
Aquatic toxicity: 48hr LC50 (minnow): 100-500 mg/l [ISP]
N-METHYL-2-PYRROLIDONE:
DO NOT discharge into sewer or waterways.
log Kow: -0.44-0.1

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction,
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning or process equipment to enter drains.

It may be necessary to collect all wash water for treatment before disposal.
In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

According to the European Waste Catalogue, Waste Codes are not product specific but application specific. Waste Codes should be assigned by the User based on the application in which the product is used.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None
NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:ADR, IATA, IMDG

Section 15 - REGULATORY INFORMATION

ANNEX 1

Ingredient	Annex 1 67/548/EEC
N-methyl-2-pyrrolidone	606-021-00-7

RISK

Risk Codes	Risk Phrases
R22	Harmful if swallowed.
R36/38	Irritating to eyes and skin.
R67	Vapours may cause drowsiness and dizziness.

SAFETY

Safety Codes	Safety Phrases
S23	Do not breathe gas/ fumes/ vapour/ spray.
S53	Avoid exposure - obtain special instructions before use.
S40	To clean the floor and all objects contaminated by this material, use water.
S13	Keep away from food, drink and animal feeding stuffs.
S27	Take off immediately all contaminated clothing.
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
S46	If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).

ANNEX 2: Indications of Danger

Xn	Harmful

REGULATIONS

X- Duty Cleaner (EU) (CAS: None):
No regulations applicable
gamma- butyrolactone (CAS: 96- 48- 0) is found on the following regulatory lists;
Denmark Indicative List of Organic Solvents
European Customs Inventory of Chemical Substances - ECICS (Danish)
European Customs Inventory of Chemical Substances - ECICS (Dutch)
European Customs Inventory of Chemical Substances - ECICS (Finnish)
European Customs Inventory of Chemical Substances - ECICS (French)
European Customs Inventory of Chemical Substances - ECICS (German)
European Customs Inventory of Chemical Substances - ECICS (Italian)
European Customs Inventory of Chemical Substances - ECICS (Portuguese)
European Customs Inventory of Chemical Substances - ECICS (Spanish)
European Customs Inventory of Chemical Substances - ECICS (Swedish)
European Customs Inventory of Chemical Substances (English)
European Inventory of Existing Commercial Substances - EINECS
European Union (EU) Inventory of Fragrance Ingredients (Perfume and Aromatic Raw Materials)
European Union (EU) Inventory of Ingredients used in Cosmetic Products
European Union (EU) Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations
Germany Classification of Substances Hazardous to Waters (WGK)
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
International Council of Chemical Associations (ICCA) - High Production Volume List
Lithuania Occupational Exposure Limits
OECD Representative List of High Production Volume (HPV) Chemicals
Switzerland Giftliste (List of Toxic Substances) 1
N- methyl- 2- pyrrolidone (CAS: 872- 50- 4) is found on the following regulatory lists;
Denmark Indicative List of Organic Solvents
Denmark Limit values for air pollutants
Denmark Limit values for air pollutants (Danish)
Estonia Limit values for chemical hazards in the working environment
Estonia Occupational Exposure Limits
EU Directive 96/61/EC concerning integrated pollution prevention and control, Annex III
EU REACH Regulation (EC) No 1907/2006 - Candidate List of Very High Concern - List of Substance Subject to Authorization
European Customs Inventory of Chemical Substances - ECICS (Danish)
European Customs Inventory of Chemical Substances - ECICS (Dutch)
European Customs Inventory of Chemical Substances - ECICS (Finnish)
European Customs Inventory of Chemical Substances - ECICS (French)
European Customs Inventory of Chemical Substances - ECICS (German)
European Customs Inventory of Chemical Substances - ECICS (Italian)
European Customs Inventory of Chemical Substances - ECICS (Portuguese)
European Customs Inventory of Chemical Substances - ECICS (Spanish)
European Customs Inventory of Chemical Substances - ECICS (Swedish)

European Customs Inventory of Chemical Substances (English)
European Inventory of Existing Commercial Substances - EINECS
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Danish)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Dutch)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Finnish)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (French)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (German)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Italian)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Portuguese)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Spanish)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 29 (Swedish)
European Union (EU) Control of Major Accident Hazards Involving Dangerous Substances - Seveso Category
European Union (EU) List of Dangerous Substances (Annex I) - up to the 29th ATP
European Union (EU) Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations
Finland Occupational Exposure Levels - Concentrations Known to be Harmful
Finland Occupational Exposure Levels - Intended Changes
Germany Classification of Substances Hazardous to Waters (WGK)
Germany Pregnancy Risk Group Classifications & Germ Cell Mutagens
Germany Recommended Exposure Limits - MAK Values
Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)
Greece Occupational Exposure Limits
Iceland Occupational Exposure Limits (Icelandic)
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Council of Chemical Associations (ICCA) - High Production Volume List
Ireland Occupational Exposure Limits
Netherlands Occupational Exposure Limits (Dutch)
Norway Administrative norms for air contamination in the workplace
OECD Representative List of High Production Volume (HPV) Chemicals
Poland Workplace Maximum Allowable Concentration (Polish)
Russia Occupational Exposure Limits
Spain Occupational Exposure Limit for Chemical Agents
Spain Occupational Exposure Limit for Chemical Agents (Spanish)
Sweden Occupational Exposure Limit Values and Measures against Air Contaminants
Switzerland Giftliste (List of Toxic Substances) 1
Switzerland Occupational Exposure Limits (German)
UK Workplace Exposure Limits (WELs)
N- methyl- 2- pyrrolidone (CAS: 26138- 58- 9) is found on the following regulatory lists;

EU Directive 96/61/EC concerning integrated pollution prevention and control, Annex III
Finland Occupational Exposure Levels - Intended Changes
This safety data sheet is in compliance with the following EU legislation and its adaptations – as far as applicable - : 67/548/EEC, 1999/45/EC, 76/769/EEC, 98/24/EC, 92/85/EEC, 94/33/EC, 91/689/EEC, 1999/13/EC, as well as the following British legislation:
- The Control of Substances Hazardous to Health Regulations (COSHH) 2002
- COSHH Essentials
- The Management of Health and Safety at Work Regulations 1999

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE
Skin contact may produce health damage*.
Cumulative effects may result following exposure*.
Limited evidence of a carcinogenic effect*.
Possible respiratory sensitiser*.
Possible skin sensitiser*.
May be harmful to the foetus/embryo*.
* (limited evidence).

RISK
Explanation of risk codes used on this MSDS

Risk Codes	Risk Phrases
R22	Harmful if swallowed.
R36/38	Irritating to eyes and skin.
R36	Irritating to eyes.
R67	Vapours may cause drowsiness and dizziness.

ANNEX 2: Indications of Danger

Xi	Irritant
Xn	Harmful

Ingredients with multiple CAS Nos

Ingredient Name	CAS
N-methyl-2-pyrrolidone	872-50-4, 26138-58-9

REPRODUCTIVE HEALTH GUIDELINES

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for reproductive no -observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
N-methyl-2-pyrrolidone	0.91 mg/m3	1000	D	NA	-

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time -weighted average unless specified otherwise. CR = Cancer Risk/10000; UF = Uncertainty factor: TLV believed to be adequate to protect reproductive health: LOD: Limit of detection Toxic endpoints have also been identified as: D = Developmental; R = Reproductive; TC = Transplacental carcinogen Jankovic J., Drake F.: A Screening Method for Occupational Reproductive American Industrial Hygiene Association Journal 57: 641-649 (1996).

EXPOSURE STANDARD FOR MIXTURES

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration: Composite Exposure Standard for Mixture (TWA) :100 mg/m³.

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Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.