

DOUBLE CLASS DC METERED ODOUR NEUTRALIZER

ChemWatch Material Safety Data Sheet
Issue Date: Tue 1-Mar-2005

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

DOUBLE CLASS DC METERED ODOUR NEUTRALIZER

CAS RN

NONE

STATEMENT OF HAZARDOUS NATURE

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

SUPPLIER

Company: Double Class (M) Sdn Bhd
Address:
No.14, Jalan 4
Pandan Inidah
Kuala Lumpur, 55100
MYS
Telephone: +60 3 4280 9898

PRODUCT USE

Application is by spray atomisation from a hand held aerosol pack.

SYNONYMS

XSM30

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	INT HAZ	%
hydrocarbon propellant EC NO: 270-704-2 R CODES: R12, R45, R46	68476-85-7.	None	50-70
ethanol EC NO: 200-578-6 R CODES: R11	64-17-5	F+,Xi	13-23
perfume, unspecified			5-17
odour counteractant additive, as metazene			2-5

Section 3 - HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

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Section 3 - HAZARDS IDENTIFICATION

EYE

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.
Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Principal route of occupational exposure to the gas is by inhalation. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Long-term exposure to ethanol may result in progressive liver damage with fibrosis or may exacerbate liver injury caused by other agents. Repeated ingestion of ethanol by pregnant women may adversely affect the central nervous system of the developing fetus, producing effects collectively described as fetal alcohol syndrome. These include mental and physical retardation, learning disturbances, motor and language deficiency, behavioural disorders and reduced head size. Consumption of ethanol (in alcoholic beverages) may be linked to the development of Type I hypersensitivities in a small number of individuals. Symptoms, which may appear immediately after consumption, include conjunctivitis, angioedema, dyspnoea, and urticarial rashes. The causative agent may be acetic acid, a metabolite (1). (1)
Boehncke W.H., & H.Gall, Clinical & Experimental Allergy, 26, 1089-1091, 1996.

Section 4 - FIRST AID MEASURES

SWALLOWED

Not considered a normal route of entry.
If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

- 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.

Avoid giving milk or oils.
Avoid giving alcohol.

EYE

If aerosols come in contact with the eyes:

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Section 4 - FIRST AID MEASURES

- Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh 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.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If solids or aerosol mists are deposited upon the skin:

- Flush skin and hair with running water (and soap if available).
- Remove any adhering solids with industrial skin cleansing cream.
- DO NOT use solvents.
- Seek medical attention in the event of irritation.

INHALED

If aerosols, fumes or combustion products are inhaled:

- Remove to fresh air.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Treat symptomatically.

For acute or short term repeated exposures to ethanol:

- Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyrodoxine, Vitamins C K)
- Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine)
- Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- Fructose administration is contra-indicated due to side effects.

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

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Section 4 - FIRST AID MEASURES

- Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

SMALL FIRE:

- Water spray, dry chemical or CO₂

LARGE FIRE:

- Water spray or fog.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- 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

- Liquid and vapour are flammable.
- Moderate fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Moderate explosion hazard when exposed to heat or flame.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- Aerosol cans may explode on exposure to naked flame.
- Rupturing containers may rocket and scatter burning materials.
- Hazards may not be restricted to pressure effects.
- May emit acrid, poisonous or corrosive fumes.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

WARNING: In use may form flammable/ explosive vapour-air mixtures.

Combustion products include, carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

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

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Wear protective clothing, impervious gloves and safety glasses.
- Shut off all possible sources of ignition and increase ventilation.
- Wipe up.
- If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.

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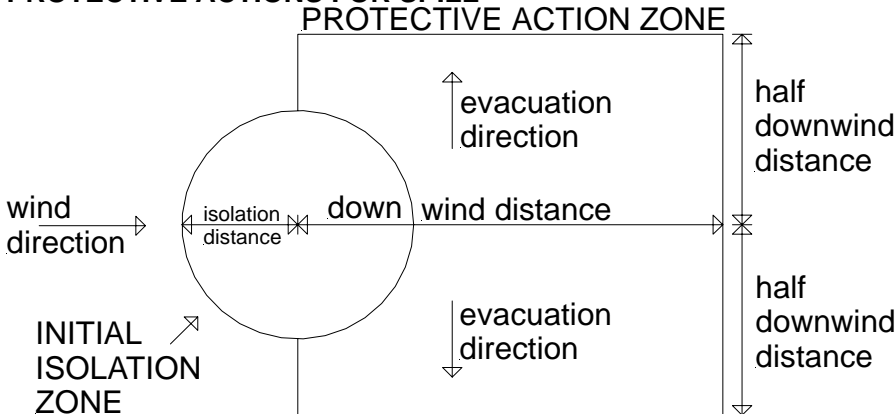
Section 6 - ACCIDENTAL RELEASE MEASURES

- Undamaged cans should be gathered and stowed safely.
- 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

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Absorb or cover spill with sand, earth, inert materials or vermiculite.
- If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated.
- Undamaged cans should be gathered and stowed safely.
- Collect residues and seal in labelled drums for disposal.

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)

Isolation Distance	-
Downwind Protection Distance	8 metres

FOOTNOTES

- 1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.
- 2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.
- 3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.

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Section 6 - ACCIDENTAL RELEASE MEASURES

- 4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".
LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.
 - 5 Guide 126 is taken from the US DOT emergency response guide book.
 - 6 IERG information is derived from CANUTEC - Transport Canada.
-

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- 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.
 - Avoid smoking, naked lights or ignition sources.
 - Avoid contact with incompatible materials.
 - When handling, DO NOT eat, drink or smoke.
 - DO NOT incinerate or puncture aerosol cans.
 - DO NOT spray directly on humans, exposed food or food utensils.
 - Avoid physical damage to containers.
 - Always wash hands with soap and water after handling.
 - Work clothes should be laundered separately.
 - 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.
- DO NOT allow clothing wet with material to stay in contact with skin.

SUITABLE CONTAINER

- Aerosol dispenser.
- Check that containers are clearly labelled.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

Store in an upright position.

Outside or detached storage is preferred.

Store below 38 deg. C.

Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can.

- Store in original containers in approved flammable liquid storage area.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- No smoking, naked lights, heat or ignition sources.
- Keep containers securely sealed. Contents under pressure.
- Store away from incompatible materials.
- Store in a cool, dry, well ventilated area.
- Avoid storage at temperatures higher than 40 deg C.
- Store in an upright position.
- Protect containers against physical damage.
- Check regularly for spills and leaks.
- Observe manufacturer's storing and handling recommendations.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³
Portuguese Occupational Exposure Limits	GPL (Gás de petróleo liquefeito)	1000					
Irish Occupational Exposure Limits	Liquefied petroleum gas (LPG)	1000	1800	1250	2250		
Belgian Occupational Exposure Limits	Pétrole (gaz liquéfié)	1000	1826				
UK Approved Occupational Exposure Standards (OES)	Liquefied petroleum gas (LPG)	1000	1750	1250	2180		
Belgian Occupational Exposure Limits	Alcool éthylique	1000	1907				
Swedish Occupational Exposure Limits	Ethanol (ethyl alcohol)	500	1000	1000	1900		
Swedish Occupational Exposure Limits	Ethyl alcohol (ethanol)	500	1000	1000	1900		
Estonian Occupational Exposure Limits	Etanol	500	1000	1000	1900		
Irish Occupational Exposure Limits	Ethyl alcohol	1000	1900				
Portuguese Occupational Exposure Limits	Etanol (Alcool etílico)	1000					
Irish Occupational Exposure Limits	Ethanol	1000	1900				
Swiss Occupational Exposure Limits	Ethanol	500	960	1000	1920		
Finnish Occupational Exposure Levels - Concentrations known to be Harmful	Ethanol	1000	1900	1300	2500		
German Occupational Exposure Values (MAK)	Ethanol	500	960			II(2)	
UK Approved Occupational Exposure Standards (OES)	Ethanol	1000	1920				
French Threshold Limit Values for Occupational Exposure (VLE, VME)	Alcool éthylique	1000	1900	5000	9500		
Icelandic Occupational Exposure Limits	Etanól (etylalkóhól)	1000	1900				
Polish Workplace Maximum Allowable Concentration	Etanol (alkohol etylowy)		1.900		-		-
Russian Occupational Exposure Limits					1000		
Norwegian Occupational Exposure Limits		500	950				
Icelandic Occupational Exposure Limits	Etylalkóhól (etanól)	1000	1900				
Hungarian Occupational Exposure Limits			1000		3000		

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

No data available for hydrocarbon propellant as (CAS: 68476-86-8)

ODOUR SAFETY FACTOR (OSF)

OSF=0.16 (hydrocarbon propellant)

Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	As "A" for 50-90% of persons being distracted
C	1-26	As "A" for less than 50% of persons being distracted
D	0.18-1	10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As "D" for less than 10% of persons aware of being tested

EXPOSURE STANDARDS FOR MIXTURE

"Worst Case" computer-aided prediction of vapour components/concentrations:

Composite Exposure Standard for Mixture (TWA) (mg/m³): 1819.1445 mg/m³

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.

Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc: (%)

Component	Breathing zone (ppm)	Breathing Zone (mg/m ³)	Mixture Conc (%)
hydrocarbon propellant	760.69	1369.2486	70.0
ethanol	239.31	449.8960	23.0

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.

At the "Composite Exposure Standard for Mixture" (TWA) (mg/m³): 93 mg/m³

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

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

literature search for the 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.

Ingredient	ORG	UF	Endpoint	CR	TLV Adeq
ethanol	1880 mg/m ³	NA	NA	NA	Yes

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).

INGREDIENT DATA

HYDROCARBON PROPELLANT:

PEL TWA: 1000 ppm, 1800 mg/m³ [OSHA Z1]

hydrocarbon propellant, as liquified petroleum gas

TLV TWA: 1000 ppm, 1800 mg/m³

ES TWA: 1000 ppm, 1800 mg/m³

OES TWA: 1000 ppm, 1750 mg/m³; STEL: 1250 ppm, 2180 mg/m³

ETHANOL:

TLV TWA: 1000 ppm A4 [ACGIH]

PEL TWA: 1000 ppm, 1900 mg/m³ [OSHA Z1]

TLV TWA: 1000 ppm, 1880 mg/m³ A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans.

ES TWA: 1000 ppm, 1880 mg/m³

OES TWA: 1000 ppm, 1920 mg/m³

MAK value: 500 ppm, 960 mg/m³

MAK Category II Peak Limitation: For substances with systemic effects and with a half-life in humans of less than two hours.

Allows excursions of 2 times the MAK value, for 30 minutes (on average), four times per shift.

MAK Group C: There is no reason to fear risk of damage to the developing embryo when MAK and BAT values are observed.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany.

Odour Threshold Value: 49-716 ppm (detection), 101 ppm (recognition)

IDLH Level: 3300 ppm (lower explosive limit)

Eye and respiratory tract irritation do not appear to occur at exposure levels of less than 5000 ppm and the TLV-TWA is thought to provide an adequate margin of safety against such effects.

Experiments in man show that inhalation of 1000 ppm caused slight symptoms of poisoning and 5000 ppm caused strong stupor and morbid sleepiness.

Subjects exposed to 5000 ppm to 10000 ppm experienced smarting of the eyes and nose and coughing. Symptoms disappeared within minutes.

Inhalation also causes local irritating effects to the eyes and upper respiratory tract, headaches, sensation of heat intraocular tension, stupor, fatigue and a need to sleep.

At 15000 ppm there was continuous lachrymation and coughing.

PERSONAL PROTECTION

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. DO NOT wear contact lenses.

HANDS/FEET

No special equipment needed when handling small quantities.

OTHERWISE:

For potentially moderate exposures:

Wear general protective gloves, eg. light weight rubber gloves.

For potentially heavy exposures:

Wear chemical protective gloves, eg. PVC. and safety footwear.

OTHER

No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Skin cleansing cream.
- Eyewash unit.
- Do not spray on hot surfaces.

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection: ethanol

Protective Material CPI *.

BUTYL	A
NITRILE+PVC	A
PE/EVAL/PE	A
NEOPRENE	A
NITRILE	A
PVC	B
NATURAL+NEOPRENE	C
NATURAL RUBBER	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

Respiratory protection may be required when ANY "Worst Case" vapour-phase concentration is exceeded (see Computer Prediction in "Exposure Standards").

Protection Factor	Half-Face Respirator	Full-Face Respirator
5 x ES	Air-line*	A-2
	-	A-PAPR-2
10 x ES	-	A-3
10+ x ES	-	Air-line**

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

* - Continuous Flow; ** - Continuous-flow or positive pressure demand
^ - Full-face.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection.

Provide adequate ventilation in warehouse or closed storage areas.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Speed:
aerosols, (released at low velocity into zone of active generation)	0.5-1 m/s
direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Gas.

Molecular Weight: Not Applicable
Melting Range (°C): Not Available
Solubility in water (g/L): Partly Miscible
pH (1% solution): Not Available

Boiling Range (°C): Not Available
Specific Gravity (water=1): Not Available
pH (as supplied): Not Available
Vapour Pressure (kPa): Not Available

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Volatile Component (%vol): Not Available
Relative Vapour Density (air=1): Not Available
Lower Explosive Limit (%): Not Available
Autoignition Temp (°C): Not Available
State: Liquid

Evaporation Rate: Not Available
Flash Point (°C): -81(propellant)
Upper Explosive Limit (%): Not Available
Decomposition Temp (°C): Not Available

APPEARANCE

Supplied as an aerosol pack. Contents under PRESSURE. Contains highly flammable hydrocarbon propellant.
Flammable liquid; partly mixes with water.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Elevated temperatures.
- Presence of open flame.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

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Not available. Refer to individual constituents.

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

HYDROCARBON PROPELLANT:

No significant acute toxicological data identified in literature search.

ETHANOL:

TOXICITY

Oral (rat) LD50: 7060 mg/kg
Oral (human) LDLo: 1400 mg/kg
Oral (man) TDLo: 50 mg/kg
Oral (man) TDLo: 1.40 mg/kg
Oral (woman) TDLo: 256 mg/kg/12 wks
Inhalation (rat) LC50: 20,000 ppm/10h

IRRITATION

Skin (rabbit):20 mg/24hr-moderate
Skin (rabbit):400 mg (open)-mild
Eye (rabbit):100mg/24hr-moderate
Eye (rabbit): 500 mg SEVERE

Section 12 - ECOLOGICAL INFORMATION

Drinking Water Standards:
hydrocarbon total: 10 ug/l (UK max.).
DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

- Consult State Land Waste Management Authority for disposal.
- Discharge contents of damaged aerosol cans at an approved site.
- Allow small quantities to evaporate.
- DO NOT incinerate or puncture aerosol cans.
- Bury residues and emptied aerosol cans at an approved site.

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Section 14 - TRANSPORTATION INFORMATION



Shipping Name: AEROSOLS
Hazard Class: 2.1, None
UN/NA Number: 1950
ADR Number: None
Packing Group: None
Labels Required: flammable gas
Additional Shipping Information:
International Transport Regulations:
IMO: 2.1

Section 15 - REGULATORY INFORMATION

RISK

Extremely flammable.
Irritating to eyes.
Risk of explosion if heated under confinement.

Preparation is WGK 1

Name	WGK	Score
hydrocarbon propellant	1	0
ethanol	1	Source: VwVwS

Classification due to the administrative regulation of water-endangering materials (VwVwS)
(<http://www.umweltbundesamt.de/wgs/vwvws.htm>)

SAFETY

Do not breathe gas/fumes/vapour/spray. Wear eye/face protection. Use only in well ventilated areas. Take off immediately all contaminated clothing. In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre. If you feel unwell contact Doctor or Poisons Information Centre. (Show the label if possible).

REGULATIONS

hydrocarbon propellant (CAS: 68476-85-7) is found on the following regulatory lists:

- European Inventory of Existing Chemical Substances (EINECS)
- European Union (EU) Carcinogenic Substances
- European Union (EU) Control of Major Accident Hazards Involving Dangerous Substances - Seveso Category 1
- 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
- European Union (EU) Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations

hydrocarbon propellant (CAS: 68476-86-8) is found on the following regulatory lists:

- European Inventory of Existing Chemical Substances (EINECS)
- European Union (EU) Carcinogenic Substances
- European Union (EU) Control of Major Accident Hazards Involving Dangerous Substances - Seveso Category 1
- 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

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European Union (EU) Restrictions on the Marketing and Use of Certain Dangerous Substances and Prepa

ethanol (CAS: 64-17-5) is found on the following regulatory lists:

- European Customs Inventory of Chemical Substances
- European Inventory of Existing Chemical Substances (EINECS)
- European Union (EU) Control of Major Accident Hazards Involving Dangerous Substances - Seveso Cate
- 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 Prepa
- German Carcinogenic Substances
- German Pregnancy Risk Group Classifications & Germ Cell Mutagens

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

Dit veiligheidsinformatiebladen voldoet, zover toepasselijk, aan de eisen gesteld in de volgende EU regelgeving en de aanpassingen daarvan: 67/548/EEG, 1999/45/EG, 76/769/EEG, 98/24/EG, 92/85/EEG, 94/33/EG, 91/689/EEG, 1999/13/EG, alsmede aan die gesteld in de volgende Nederlandse regelgeving:

- Wet Milieugevaarlijke Stoffen,
- Warenwet,
- Arbeidsomstandighedenwet.

Dieses Sicherheitsdatenblatt entspricht den folgenden EU Gesetzen und deren Aktualisierungen - sofern anwendbar - : 67/548/EWG, 1999/45/EG, 76/769/EWG, 98/24/EG, 92/85/EWG, 94/33/EG, 91/689/EWG, 1999/13/EG, sowie den folgenden deutschen Gesetzen:

- Beschäftigungsbeschränkungen für Jugendliche nach § 22 ArbSchG und werdende und stillende Mütter nach §§ 4 und 5 MuSchRiv
- Störfall-Verordnung
- Technische Anleitung zur Reinhaltung der Luft (TA Luft)
- Verwaltungsvorschrift wassergefährdende Stoffe – VwVwS (WGK)
- Beschränkungs- und Verbotverordnungen (z.B. FCKW- und Halonverbotsverordnung).

Cette fiche de données de sécurité satisfait aux exigences, pour autant qu'elles soient applicables, de la réglementation européenne suivante et de ses adaptations: 67/548/CEE, 1999/45/CE, 76/769/CEE, 98/24/CE, 92/85/CEE, 91/689/CEE, 1999/13/CE, ainsi qu'aux exigences de la réglementation française suivante:

- Code de la sécurité sociale, Livre 4, Accidents du travail et maladies professionnelles
- Travaux nécessitant une surveillance médicale spéciale (Arrêté du 11 juillet 1977, J.O. du 24 juillet 1977).
- Circulaire n°10 du 29 avril 1980 relative à l'application de l'arrêté du 11 juillet 1977 fixant la liste des travaux nécessitant une surveillance médicale spéciale. (Non parue au Journal officiel)
- Arrêté du 6 décembre 1996 portant application de l'article 16 du décret n° 96-98 du 7 février 1996 relatif à la protection des travailleurs contre les risques liés à l'inhalation des poussières d'amiante fixant le modèle de l'attestation d'exposition à remplir par l'employeur et le médecin du travail
- Dispositions particulières aux femmes et aux jeunes travailleurs (Code du Travail, article L234-3)

Dit veiligheidsinformatiebladen voldoet, zover toepasselijk, aan de eisen gesteld in de volgende EU regelgeving en de aanpassingen daarvan: 67/548/EEG, 1999/45/EG, 76/769/EEG, 98/24/EG, 92/85/EEG, 94/33/EG, 91/689/EEG, 1999/13/EG, alsmede aan die gesteld in de volgende Belgische regelgeving:

- Het Koninklijk Besluit van 3 mei 1999 betreffende de bescherming van de jongeren op het werk.
- Het Koninklijk besluit van 2 mei 1995 inzake moederschapsbescherming.
- Het Koninklijk besluit van 28 mei 2003 betreffende het gezondheidstoezicht op de werknemers

Cette fiche de données de sécurité satisfait aux exigences, pour autant qu'elles soient applicables, de la réglementation européenne suivante et de ses adaptations: 67/548/CEE, 1999/45/CE, 76/769/CEE, 98/24/CE, 92/85/CEE, 94/33/CE, 91/689/CEE, 1999/13/CE, ainsi qu'aux exigences de la réglementation belge suivante:

- Arrêté royal du 3 mai 1999 relatif à la protection des jeunes au travail
- Arrêté royal du 2 mai 1995 concernant la protection de la maternité
- Arrêté royal du 28 mai 2003 relatif à la surveillance de la santé des travailleurs

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Section 16 - OTHER INFORMATION

RISK

Explanation of Risk Codes used in the Ingredient Table

R11	Highly flammable.
R12	Extremely flammable.
R45	May cause CANCER.
R46	May cause heritable genetic damage.

This product contains Non-depleting Ozone Substances.

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