and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

This Safety Data Sheet adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

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

#### 1.1. Product identifier

Product name : REFINE® MAX SX®

Synonyms : C12726328

DPX-CDQ74 40SG

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

Use of the Substance/Mixture Herbicide

#### 1.3. Details of the supplier of the safety data sheet

Company : Du Pont (UK) Limited

Wedgwood Way

Stevenage, Herts. SG1 4QN

United Kingdom

Telephone : +44 (0) 1438 734 000

E-mail address : sds-support@che.dupont.com

## 1.4. Emergency telephone number

Emergency telephone number : +44 (0) 8456 006 640

## **SECTION 2: Hazards identification**

#### 2.1. Classification of the substance or mixture

Acute aquatic toxicity, H400: Very toxic to aquatic life.

Category 1

Chronic aquatic toxicity, H410: Very toxic to aquatic life with long lasting effects.

Category 1

Dangerous for the R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects

environment in the aquatic environment.

#### 2.2. Label elements



Warning

and 453/2010



## REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

H410 Very toxic to aquatic life with long lasting effects.

Special labelling of certain substances and mixtures

EUH401: To avoid risks to human health and the environment, comply with the

instructions for use.,

P391 Collect spillage.

P501 Dispose of contents/ container to a licensed hazardous-waste disposal

contractor or collection site except for empty clean containers which can be

disposed of as non-hazardous waste.

SP 1 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).

#### 2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

### **SECTION 3: Composition/information on ingredients**

#### 3.1. Substances

not applicable

#### 3.2. Mixtures

Registration number	Classification according to Directive 67/548/EEC	Classification according to Regulation (EU) 1272/2008 (CLP)	Concentration
hifensulfuron methyl (	CAS-No.79277-27-3)		
	N;R50/53	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	33.3%
Metsulfuron methyl (CA	S-No.74223-64-6)		
	N;R50/53	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	6.7 %
Sodium carbonate (CAS		8-8)	
01-2119485498-19	Xi;R36	Eye Irrit. 2; H319	>= 10 - < 15 %
01 2110 100 100 10	7.1,1.100		)= 10 · < 13 / <sub>0</sub>
	ium salt, sulfomethylated (C		<i>y</i> = 10 ° € 13 %

The above products are REACH compliant; Registration number(s) may not be provided because substance(s) are exempted, not yet registered under REACH or are registered under another regulatory process (biocide uses, plant protection products), etc.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

For the full text of the R-phrases mentioned in this Section, see Section 16. For the full text of the H-Statements mentioned in this Section, see Section 16.

#### **SECTION 4: First aid measures**

#### 4.1. Description of first aid measures

Never give anything by mouth to an unconscious person. For specialist advice General advice

physicians should contact the National Poisons Information Service: Tel. 111

for England and Wales and Tel. 08454 24 24 24 for Scotland.

Move to fresh air. Consult a physician after significant exposure. Artificial Inhalation

respiration and/or oxygen may be necessary.

Take off contaminated clothing and shoes immediately. Wash off immediately Skin contact

with soap and plenty of water. In the case of skin irritation or allergic reactions

see a physician. Wash contaminated clothing before re-use.

If easy to do, remove contact lens, if worn. Hold eye open and rinse slowly and Eye contact

gently with water for 15-20 minutes. If eye irritation persists, consult a

specialist.

Obtain medical attention. DO NOT induce vomiting unless directed to do so by Ingestion

a physician or poison control center. If victim is conscious: Rinse mouth with

water.

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

**Symptoms** No cases of human intoxication are known and the symptoms of experimental

intoxication are not known.

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

Treatment Treat symptomatically.

## **SECTION 5: Firefighting measures**

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO2)

Extinguishing media which shall not be used for safety

reasons

: High volume water jet, (contamination risk)

### 5.2. Special hazards arising from the substance or mixture

Specific hazards during

firefighting

: Hazardous decomposition products formed under fire conditions. Carbon

dioxide (CO2) Nitrogen oxides (NOx)

#### 5.3. Advice for firefighters

for firefighters

Special protective equipment : Wear full protective clothing and self-contained breathing apparatus.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

Further information

: Prevent fire extinguishing water from contaminating surface water or the ground water system. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

: (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers / tanks with water spray.

#### SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions

: Control access to area. Keep people away from and upwind of spill/leak. Avoid dust formation. Avoid breathing dust. Use personal protective equipment, Refer to protective measures listed in sections 7 and 8.

### 6.2. Environmental precautions

**Environmental precautions** 

: Prevent further leakage or spillage if safe to do so. Use appropriate container to avoid environmental contamination. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. If the spill area is porous, the contaminated material must be collected for subsequent treatment or disposal. If the product contaminates rivers and lakes or drains inform respective authorities.

## 6.3. Methods and materials for containment and cleaning up

Methods for cleaning up

: Clean-up methods - small spillage Sweep up or vacuum up spillage and collect in suitable container for disposal.

Clean-up methods - large spillage Avoid dust formation. Knock down dust with water spray jet. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

If spill area is on ground near valuable plants or trees, remove 5 cm of top soil after initial clean-up.

Other information

: Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

#### 6.4. Reference to other sections

For personal protection see section 8., For disposal instructions see section 13.

## **SECTION 7: Handling and storage**

## 7.1. Precautions for safe handling

Advice on safe handling

Use only according to our recommendations. Use only clean equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust or spray mist. Wear personal protective equipment. For personal protection see section 8. Prepare the working solution as given on the label(s) and/or the user instructions. Use prepared working solution as soon as possible - Do not store. Provide appropriate exhaust ventilation at places where dust is formed.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

Advice on protection against fire and explosion

: Keep away from heat and sources of ignition. Avoid dust formation in confined

areas. During processing, dust may form explosive mixture in air.

## 7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

: Store in a place accessible by authorized persons only. Store in original container. Keep in properly labelled containers. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep

away from food, drink and animal feedingstuffs.

Advice on common storage : No special restrictions on storage with other products.

Other data : Stable under recommended storage conditions.

### 7.3. Specific end use(s)

Plant protection products subject to Regulation (EC) No 1107/2009.

## **SECTION 8: Exposure controls/personal protection**

## 8.1. Control parameters

If sub-section is empty then no values are applicable.

Components with workplace control parameters

Type	Control	Update	Basis	Remarks
Form of exposure	parameters			

## Sucrose (CAS-No. 57-50-1)

TWA	10 mg/m3	2007	EH40 WEL			
STEL	20 mg/m3	2007	EH40 WEL			

## 8.2. Exposure controls

Engineering measures : Ensure adequate ventilation, especially in confined areas. Provide for

appropriate exhaust ventilation and dust collection at machinery. Use sufficient

ventilation to keep employee exposure below recommended limits.

Eye protection : Safety glasses with side-shields conforming to EN166

Hand protection : Material: Nitrile rubber

Glove thickness: 0.3 mm

Glove length: Standard glove type.

Protection index: Class 6 Wearing time: > 480 min

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Please observe the

instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local

conditions under which the product is used, such as the danger of cuts,

abrasion, and the contact time. The suitability for a specific workplace should be

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014

Ref. 130000114992

discussed with the producers of the protective gloves. Gloves must be inspected prior to use. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. The exact break through time can be obtained from the protective glove producer and this has to be observed. Gauntlets shorter than 35 cm long shall be worn under the combination sleeve. Before removing gloves clean them with soap and water.

Skin and body protection

Manufacturing and processing work: Full protective clothing Type 5 (EN 13982-2)

Mixer and loaders must wear: Full protective clothing Type 5 + 6 (EN ISO 13982-2 / EN 13034) Rubber apron Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Spray application - outdoor: Tractor / sprayer with hood: No personal body protection normally required.

Tractor / sprayer without hood: Low application (horticulture, field crops): Full protective clothing Type 5 + 6 (EN ISO 13982-2 / EN 13034) Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Backpack / knapsack sprayer: Low application (horticulture, field crops): Full protective clothing Type 4 (EN 14605) Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Mechanical automatized spray application in closed tunnel: No personal body protection normally required.

To optimize the ergonomy it may be recommended to use cotton underwear when wearing some fabrics. Take advice from supplier. Garment materials that are resistant to both water vapour and air will maximise wearing comfort. Materials should be robust to maintain the integrity and barrier in use. The permeation resistance of the fabric must be verified independently of the « type » protection recommended, to ensure an appropriate performance level of the material adequate to the corresponding agent and type of exposure.

When exceptional circumstances would require an access to the treated area before the end of re-entry periods, wear full protective clothing Type 6 (EN 13034), nitrile rubber gloves class 2 (EN 374) and nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Protective measures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated. Only protected handlers may be in the area during application.

Hygiene measures

: Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing. Keep working clothes separately. Contaminated work clothing should not be allowed out of the workplace. For environmental protection remove and wash all contaminated protective equipment before re-use. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Dispose of rinse water in accordance with local and national regulations. Wash hands before breaks and at the end of workday.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

Respiratory protection : Manufacturing and processing work: Half mask with a particle filter FFP1 (EN149)

Mixer and loaders must wear: Half mask with a particle filter FFP1 (EN149)

Spray application - outdoor: Tractor / sprayer with hood: No personal respiratory

protective equipment normally required.

Tractor / sprayer without hood: Low application (horticulture, field crops): Half

mask with a particle filter FFP1 (EN149)

Backpack / knapsack sprayer: Low application (horticulture, field crops): Half mask

with a particle filter FFP1 (EN149)

Mechanical automatized spray application in closed tunnel: No personal

respiratory protective equipment normally required.

### **SECTION 9: Physical and chemical properties**

## 9.1. Information on basic physical and chemical properties

Form : granules

Colour : brown

Odour : slight

Odour Threshold : not determined

pH : 8.9 at 10 g/l (25 °C)

Melting point/range : Not available for this mixture.

Boiling point/boiling range : not applicable

Flash point : not applicable

Flammability (solid, gas) : The product is not flammable., Method: Directive 67/548/EEC, Annex V, A.10

Thermal decomposition : Not available for this mixture.

Auto-ignition temperature : not auto-flammable

Oxidizing properties : The product is not oxidizing. Method: Directive 67/548/EEC, Annex V, A.17.

Explosive properties : Not explosive Method: Directive 67/548/EEC, Annex V, A.14

Lower explosion limit/ lower

flammability limit

: Not available for this mixture.

Upper explosion limit/ upper

flammability limit

: Not available for this mixture.

Vapour pressure : Not available for this mixture.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

Relative density : Not available for this mixture.

Bulk density : 690 kg/m3, packed

Water solubility : soluble

Partition coefficient: n-

octanol/water

: not applicable

Viscosity, kinematic : not applicable

Relative vapour density : not applicable

Evaporation rate : not applicable

9.2. Other information

Phys.-chem./other information : No other data to be specially mentioned.

## **SECTION 10: Stability and reactivity**

**10.1. Reactivity** : No hazards to be specially mentioned.

**10.2. Chemical stability** : The product is chemically stable under recommended conditions of storage, use

and temperature.

10.3. Possibility of

hazardous reactions

: No dangerous reaction known under conditions of normal use. Polymerization

will not occur. No decomposition if stored and applied as directed.

**10.4. Conditions to avoid** : Decomposes on heating. Under severe dusting conditions, this material may

form explosive mixtures in air.

**10.5.** Incompatible materials : No materials to be especially mentioned.

10.6. Hazardous

decomposition products

: Sulphur oxides

## **SECTION 11: Toxicological information**

## 11.1. Information on toxicological effects

Acute oral toxicity

LD50 / rat : > 5,000 mg/kg Method: OECD Test Guideline 401 (Data on the product itself)

Acute inhalation toxicity

 Thifensulfuron methyl LC50 / 4 h rat : > 7.9 mg/l

Metsulfuron methyl

LC50 / 4 h rat : > 5.3 mg/l

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

### Acute dermal toxicity

LD50 / rat : > 5,000 mg/kg Method: OECD Test Guideline 402 (Data on the product itself)

#### Skin irritation

rabbit

Result: No skin irritation

Method: OECD Test Guideline 404

(Data on the product itself)

### Eye irritation

rabbit

Result: No eye irritation

Method: OECD Test Guideline 405

(Data on the product itself)

#### Sensitisation

guinea pig Maximisation Test (GPMT) Result: Animal test did not cause sensitization by skin contact. Method: OECD Test Guideline 406

(Data on the product itself)

#### Repeated dose toxicity

Thifensulfuron methyl

The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed multiple species Reduced body weight gain

· Metsulfuron methyl

Oral rat

Exposure time: 90 d

Reduced body weight gain, Liver effects

Oral rat

Reduced body weight gain, Organ weight changes, Liver

Dermal rabbit Skin irritation

## Mutagenicity assessment

• Thifensulfuron methyl

Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Metsulfuron methyl

Animal testing did not show any mutagenic effects. Did not cause genetic damage in cultured bacterial cells. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

### Carcinogenicity assessment

- Thifensulfuron methyl Animal testing did not show any carcinogenic effects.
- Metsulfuron methyl
   Not classifiable as a human carcinogen. Did not show carcinogenic effects in animal experiments.

### Toxicity to reproduction assessment

- Thifensulfuron methyl No toxicity to reproduction
- Metsulfuron methyl
   No toxicity to reproduction Animal testing did not show any effects on fertility.

### Assessment teratogenicity

- Thifensulfuron methyl
   Did not show teratogenic effects in animal experiments. Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
- Metsulfuron methyl Animal testing showed no developmental toxicity.

### STOT - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

The mixture does not have properties associated with aspiration hazard potential.

### **SECTION 12: Ecological information**

## 12.1. Toxicity

Toxicity to fish

static test / LC50 / 96 h / Oncorhynchus mykiss (rainbow trout): > 120 mg/l Method: OECD Test Guideline 203 (Data on the product itself)

Toxicity to aquatic plants

EbC50 / 72 h / Pseudokirchneriella subcapitata: 0.54 mg/l Method: OECD Test Guideline 201 (Data on the product itself)

Toxicity to aquatic invertebrates

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

EC50 / 48 h / Daphnia magna (Water flea): > 120 mg/l Method: OECD Test Guideline 202 (Data on the product itself)

Chronic toxicity to fish

 Thifensulfuron methyl NOEC / 62 d / Oncorhynchus mykiss (rainbow trout): 10.6 mg/l

 Metsulfuron methyl NOEC / 21 h / Oncorhynchus mykiss (rainbow trout): 68 mg/l

Chronic toxicity to aquatic Invertebrates

 Thifensulfuron methyl NOEC / 28 d / Americamysis bahia (mysid shrimp): 7.93 mg/l

 Metsulfuron methyl NOEC / 21 h / Daphnia magna (Water flea): 100 mg/l

### 12.2. Persistence and degradability

Biodegradability

Not readily biodegradable. Estimation based on data obtained on active ingredient.

- Thifensulfuron methyl According to the results of tests of biodegradability this product is not readily biodegradable.
- Metsulfuron methyl According to the results of tests of biodegradability this product is not readily biodegradable.

### 12.3. Bioaccumulative potential

Bioaccumulation

Does not bioaccumulate. Estimation based on data obtained on active ingredient.

- Thifensulfuron methyl Does not bioaccumulate.
- Metsulfuron methyl

Species: Lepomis macrochirus (Bluegill sunfish) / Exposure time: 28 d

Bioconcentration factor (BCF): 2.0 Method: OECD Test Guideline 305

Does not bioaccumulate.

#### 12.4. Mobility in soil

Mobility in soil

The product is not expected to be mobile in soils. Under actual use conditions the product has a low potential of mobility in soil.

and 453/2010



# REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

#### 12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). / This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

#### 12.6. Other adverse effects

#### Additional ecological information

No other ecological effects to be specially mentioned

See product label for additional application instructions relating to environmental precautions.

### **SECTION 13: Disposal considerations**

#### 13.1. Waste treatment methods

Product : In accordance with local and national regulations. Must be incinerated in a

suitable incineration plant holding a permit delivered by the competent authorities. Do not contaminate ponds, waterways or ditches with chemical or

used container.

Contaminated packaging : Do not re-use empty containers.

## **SECTION 14: Transport information**

**ADR** 

14.1. UN number: 3077

14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

N.O.S. (Thifensulfuron-methyl, Metsulfuron methyl)

14.3. Transport hazard class(es): 9
14.4. Packing group: III

14.5. Environmental hazards: For further information see Section 12.

14.6. Special precautions for user:

Tunnel restriction code: (E)

IATA C

14.1. UN number: 3077

14.2. UN proper shipping name: Environmentally hazardous substance, solid, n.o.s.

(Thifensulfuron-methyl, Metsulfuron methyl)

14.3. Transport hazard class(es): 9
14.4. Packing group: III

14.5. Environmental hazards: For further information see Section 12.

14.6. Special precautions for user:

DuPont internal recommendations and transport guidance: ICAO / IATA cargo aircraft only

**IMDG** 

14.1. UN number: 3077

14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

N.O.S. (Thifensulfuron-methyl, Metsulfuron methyl)

14.3. Transport hazard class(es): 9
14.4. Packing group: III

14.5. Environmental hazards : Marine pollutant

14.6. Special precautions for user:

and 453/2010



## REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

no data available

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

## **SECTION 15: Regulatory information**

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

Other regulations : The product is classified as dangerous in accordance with Regulation (EC) No.

1272/2008. Take note of Dir 94/33/EC on the protection of young people at work. Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers. Take note of

Directive 96/82/EC on the control of major-accident hazards involving

dangerous substances. Take note of Directive 2000/39/EC establishing a first list

of indicative occupational exposure limit values.

### 15.2. Chemical Safety Assessment

A Chemical Safety Assessment is not required for this/these products

The mixture is registered as a plant protection product under Regulation (EC) No. 1107/2009.

Refer to the label for exposure assessment information.

## **SECTION 16: Other information**

#### Text of R-phrases mentioned in Section 3

R36 Irritating to eyes.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic

environment.

#### Full text of H-Statements referred to under section 3.

H319 Causes serious eye irritation. H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Other information professional use

## Abbreviations and acronyms

ADR European Agreement concerning the International Carriage of Dangerous Goods by

Road

ATE Acute toxicity estimate

CAS-No. Chemical Abstracts Service number CLP Classification, Labelling and Packaging

EbC50 Concentration at which 50% reduction of biomass is observed

EC50 Median effective concentration

EN European Norm

EPA Environmental Protection Agency

ErC50 Concentration at which a 50% inhibition of growth rate is observed

EyC50 Concentration at which 50 % inhibition of yield is observed

IATA\_C International Air Transport Association (Cargo)

IBC International Bulk Chemical Code

and 453/2010



## REFINE® MAX SX®

Version 4.0 (replaces: Version 3.0)

Revision Date 19.05.2014 Ref. 130000114992

ICAO International Civil Aviation Organization
ISO International Standard Organization
IMDG International Maritime Dangerous Goods

LC50 Median Lethal Concentration

LD50 Median Lethal Dose

LOEC Lowest Observed Effect Concentration

LOEL Lowest observable effect level

MARPOL International Convention for the Prevention of Marine Pollution from Ships

n.o.s. Not Otherwise Specified

NOAEC No Observed Adverse Effect Concentration

NOAEL No observed adverse effect level NOEC No Observed Effect Concentration

NOEL No Observed Effect Level

OECD Organisation for Economic Co-operation and Development OPPTS Office of Prevention, Pesticides and Toxic Substances

PBT Persistent, Bioaccumulative and Toxic

STEL Short term exposure limit time weighted average

vPvB very Persistent and very Bioaccumulative

#### **Further information**

Before use read DuPont's safety information., Take notice of the directions of use on the label.

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Significant change from previous version is denoted with a double bar.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.