



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

This SDS adheres to the standards and regulatory requirements of the European Community and may not meet the regulatory requirements of other countries.

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name : EQUATION[®] PRO

Synonyms : DPX-KX007 WG
B10474623

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

Use of the Substance/Mixture : Fungicide

Details of the supplier of the safety data sheet

Company : DuPont International Operations S.a.r.l.
2, chemin du Pavillon
CH-1218 Le Grand-Saconnex / GE
Switzerland

Telephone : +41-22-717.5111

Telefax : +41-22-717.5109

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

Emergency telephone number

Emergency telephone number : +44-(0)8456-006.640

Supplier : Du Pont de Nemours (France) S.A.S.
82, rue de Wittelsheim
F-68701 Cernay Cedex

Telephone : +33 3 89 38 38 38

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Harmful : R22: Harmful if swallowed.
R48/22: Harmful: danger of serious damage to health by prolonged exposure if
swallowed.

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



EQUATION® PRO

Version 4.1
Revision Date 20.10.2011

Ref. 13000000279

Label elements



- R22 Harmful if swallowed.
- R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Special labelling of certain substances and mixtures To avoid risks to man and the environment, comply with the instructions for use.

Sensitising components Contains: Cymoxanil / May produce an allergic reaction.

- S 2 Keep out of the reach of children.
- S13 Keep away from food, drink and animal feedingstuffs.
- S20/21 When using do not eat, drink or smoke.
- S35 This material and its container must be disposed of in a safe way.
- S46 If swallowed, seek medical advice immediately and show this container or label.
- S57 Use appropriate container to avoid environmental contamination.
- 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).

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).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

not applicable

Mixtures

Registration number	Classification according Directive 67/548/EEC	Classification according Regulation 1272/2008 (CLP)	Concentration
---------------------	---	---	---------------

Cymoxanil (CAS-No.57966-95-7) (EC-No.261-043-0)

	Xn;R22 R43 N;R50 R53	Acute Tox. 4; H302 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	30 %
--	-------------------------------	--	------



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

--	--	--	--

Famoxadone (CAS-No.131807-57-3)

	Xn;R48/22 N;R50 R53	STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	22,5 %
--	---------------------------	---	--------

Lignosulfonic acid, sodium salt, sulfomethylated (CAS-No.68512-34-5)

	Xi;R36	Eye Irrit. 2; H319	>= 15 - < 20 %
--	--------	--------------------	----------------

Sodium Methyl-naphthalenesulfonate (CAS-No.26264-58-4) (EC-No.247-564-6)

	Xi;R36/38	Skin Irrit. 2; H315 Eye Irrit. 2; H319	>= 1 - < 5 %
--	-----------	---	--------------

Fumaric acid (CAS-No.110-17-8) (EC-No.203-743-0)

	Xi;R36	Eye Irrit. 2; H319	>= 1 - < 5 %
--	--------	--------------------	--------------

Lignin, alkali, reaction products with disodium sulfite and formaldehyde (CAS-No.105859-97-0)

			>= 1 - < 5 %
--	--	--	--------------

Sodium dihydrogenorthophosphate (CAS-No.7558-80-7) (EC-No.231-449-2)

	Xi;R36/37/38	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	>= 1 - < 5 %
--	--------------	--	--------------

Sodium dioctyl sulfosuccinate (CAS-No.577-11-7) (EC-No.209-406-4)

	Xn;R22 Xi;R37/38 Xi;R41	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335	>= 1 - < 5 %
--	-------------------------------	--	--------------

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.

4. FIRST AID MEASURES

Description of first aid measures

- General advice : Never give anything by mouth to an unconscious person.
- Inhalation : Move to fresh air. Oxygen or artificial respiration if needed. Consult a physician.
- Skin contact : Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water. In the case of skin irritation or allergic reactions see a physician. Wash contaminated clothing before re-use.
- Eye contact : If easy to do, remove contact lens, if worn. Hold eye open and rinse slowly and



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 13000000279

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

Ingestion : Obtain medical attention. DO NOT induce vomiting unless directed to do so by a physician or poison control center. If victim is conscious: Rinse mouth with water.

Most important symptoms and effects, both acute and delayed

Symptoms : Eye contact may provoke the following symptoms:, Conjunctivitis.

: Skin contact may provoke the following symptoms:, Local irritation

: Inhalation may provoke the following symptoms:, Rhinitis

: Inhalation may provoke the following symptoms:, Gastrointestinal disturbance, Diarrhoea, Vomiting, Nausea

Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

5. FIREFIGHTING MEASURES

Extinguishing media

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

Extinguishing media which shall not be used for safety reasons : High volume water jet, (contamination risk)

Special hazards arising from the substance or mixture

Specific hazards during firefighting : Hazardous decomposition products formed under fire conditions. Carbon dioxide (CO₂) nitrogen oxides (NO_x)

: Under severe dusting conditions, this material may form explosive mixtures in air.

Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

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.



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 13000000279

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas. Control access to area. Avoid dust formation. Avoid breathing dust. Avoid contact with skin and eyes. Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.

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.

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 Prevent further leakage or spillage. Avoid dust formation. 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).

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

Reference to other sections

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

7. HANDLING AND STORAGE

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. Remove and wash contaminated clothing before re-use. Avoid exceeding of the given occupational exposure limits (see section 8).

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.

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.



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

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

Other data : Stable under recommended storage conditions.

Specific end uses

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

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

Exposure controls

Engineering measures : Contains no substances with occupational exposure limit values. Ensure adequate ventilation, especially in confined areas. Provide for appropriate exhaust ventilation and dust collection at machinery.

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

Hand protection : Material: Nitrile rubber
Glove thickness: 0,4 - 0,7 mm
Glove length: Gauntlets of 35 cm long or longer.
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 discussed with the producers of the protective gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Gauntlets shorter than 35 cm long shall be worn under the combination sleeve. Gauntlets of 35 cm long or longer shall be worn over 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: Full protective clothing Type 4 (EN 14605) Nitrile rubber boots (EN 13832-3 / EN ISO 20345). Backpack / knapsack sprayer: Full protective clothing Type 4 (EN 14605) Nitrile rubber boots (EN 13832-3 / EN ISO 20345). Closed tunnel spray application: No personal body protection normally required. When exceptional circumstances 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 3 (EN 374) and nitrile rubber boots (EN 13832-3 / EN ISO 20345).

To optimize the ergonomics it may be recommended to use cotton underwear when wearing some fabrics. Take advice from supplier.



EQUATION[®] PRO

Version 4.1
Revision Date 20.10.2011

Ref. 130000000279



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.

- 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. Wash hands and face before breaks and immediately after handling the product. When using do not eat, drink or smoke. Keep away from food, drink and animal feedingstuffs. 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.
- 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: Half mask with a particle filter P1 (EN 143). Backpack / knapsack sprayer: Half mask with a particle filter P1 (EN 143). Closed tunnel spray application: No personal respiratory protective equipment normally required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

- Form** : granules
- Colour** : brown
- Odour** : sweet
- Odour Threshold** : not determined
- pH** : 5 - 7 at 10 g/l (20 °C)
- Melting point/range** : Not available for this mixture.
- Boiling point/boiling range** : not applicable
- Flash point** : not applicable
- Flammability (solid, gas)** : Does not sustain combustion.



EQUATION® PRO

Version 4.1

Revision Date 20.10.2011

Ref. 13000000279

Thermal decomposition : Decomposition under influence of moisture is highly accelerated by heating.

Autoignition temperature : 140 °C

Oxidizing properties : The product is not oxidizing.

Explosive properties : Not explosive

Upper explosion limit/ upper
flammability limit : Not available for this mixture.

Vapour pressure : Not available for this mixture.

Relative density : Not available for this mixture.

Bulk density : 580 kg/m³

Water solubility : dispersible

Partition coefficient: n-
octanol/water : Not available for this mixture.

Viscosity, kinematic : not applicable

Relative vapour density : Not available for this mixture.

Evaporation rate :
not applicable

Other information

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

10. STABILITY AND REACTIVITY

Reactivity : No hazards to be specially mentioned.

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

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.

Conditions to avoid : Protect from moisture. Decomposes slowly on exposure to water. To avoid thermal decomposition, do not overheat. Under severe dusting conditions, this material may form explosive mixtures in air.

Incompatible materials : No materials to be especially mentioned.

Hazardous decomposition products : Hydrogen cyanide (hydrocyanic acid)



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 13000000279

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute oral toxicity

LD50 / rat : 1 333 mg/kg

Method: OECD Test Guideline 401

(Data on the product itself) Information source: Internal study report

Acute dermal toxicity

LD50 / rabbit : > 5 000 mg/kg

Method: OECD Test Guideline 402

(Data on the product itself) Information source: Internal study report

Skin irritation

rabbit

Result: No skin irritation

Method: OECD Test Guideline 404

(Data on the product itself) Information source: Internal study report

Eye irritation

rabbit

Result: No eye irritation

Method: OECD Test Guideline 405

(Data on the product itself) Information source: Internal study report

Sensitisation

guinea pig Maximisation Test

Result: Animal test did not cause sensitization by skin contact.

Method: OECD Test Guideline 406

(Data on the product itself) Information source: Internal study report

Repeated dose toxicity

- Cymoxanil

Oral multiple species

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

- Famoxadone

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

Oral - feed rat

Reduced body weight gain, Organ weight changes, Increased liver enzyme levels in serum, Liver effects, Red blood cell destruction causing abnormal decrease in number of red blood cells (anaemia)

Dermal rat

Increased liver weight, Increased liver enzyme levels in serum



EQUATION® PRO

Version 4.1

Revision Date 20.10.2011

Ref. 13000000279

Mutagenicity assessment

- Cymoxanil
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- Famoxadone
Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Animal testing did not show any mutagenic effects.

Carcinogenicity assessment

- Cymoxanil
Not classifiable as a human carcinogen.
- Famoxadone
Did not show carcinogenic effects in animal experiments. Not classifiable as a human carcinogen.

Toxicity to reproduction assessment

- Cymoxanil
No toxicity to reproduction
- Famoxadone
No toxicity to reproduction

Assessment teratogenicity

- Cymoxanil
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
- Famoxadone
Animal testing showed no developmental toxicity.

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish

flow-through test / LC50 / 96 h / *Oncorhynchus mykiss* (rainbow trout): 0,038 mg/l
Method: OECD Test Guideline 203
(Data on the product itself) Information source: Internal study report

Toxicity to aquatic plants

ErC50 / 72 h / *Pseudokirchneriella subcapitata*: 10,98 mg/l
Method: Directive 67/548/EEC, Annex V, C.3.
(Data on the product itself) Information source: Internal study report

Toxicity to aquatic invertebrates

flow-through test / EC50 / 48 h / *Daphnia*: 0,054 mg/l



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

Method: OECD Test Guideline 202

(Data on the product itself) Information source: Internal study report

Toxicity to soil dwelling organisms.

LC50 / 14 d / Eisenia fetida (earthworms): 989 mg/kg

Method: OECD Test Guideline 207

(Data on the product itself) Estimation based on data obtained on active ingredient.

Toxicity to other organisms

LD50 / Colinus virginianus (Bobwhite quail): > 2 250 mg/kg

Method: US EPA Test Guideline OPP 71-1

(Data on the product itself) Information source: Internal study report

LD50 / 48 h / Apis mellifera (bees): > 200

Method: OEPP/EPPO Test Guideline 170

Oral (Data on the product itself) Information source: Internal study report

LD50 / 48 d / Apis mellifera (bees): > 200

Method: OEPP/EPPO Test Guideline 170

Contact (Data on the product itself) Information source: Internal study report

Chronic toxicity to fish

- Cymoxanil
|| NOEC / 21 d / Cyprinodon variegatus (sheepshead minnow): 0,0942 mg/l
- Famoxadone
|| NOEC / 90 d / Oncorhynchus mykiss (rainbow trout): 0,0014 mg/l

Chronic toxicity to aquatic Invertebrates

- Cymoxanil
|| NOEC / 21 d / Daphnia magna (Water flea): 0,067 mg/l
- Famoxadone
|| NOEC / 21 d / Daphnia magna (Water flea): 0,0037 mg/l

Persistence and degradability

Biodegradability

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

Bioaccumulative potential

Bioaccumulation

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

Mobility in soil

Mobility in soil



EQUATION® PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

Under actual use conditions, there is no reasonable expectation of any movement of the product from the top soil layer.

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).

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.

13. DISPOSAL CONSIDERATIONS

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.

European Waste Catalogue number : 020108: agrochemical waste containing dangerous substances

14. TRANSPORT INFORMATION

ADR

Class: 9
Packaging group: III
Classification Code: M7
HI No: 90
UN number: 3077
Labelling No.: 9
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Famoxadone, Cymoxanil)
Tunnel restriction code: (E)

IATA_C

Class: 9
Packaging group: III
UN number: 3077
Labelling No.: 9MI
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Famoxadone, Cymoxanil)

IMDG

Class: 9
Packaging group: III
UN number: 3077
Labelling No.: 9



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Famoxadone, Cymoxanil, Famoxadone, Cymoxanil)

Marine pollutant: Marine pollutant

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

15. REGULATORY INFORMATION

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

Other regulations : The mixture is classified as dangerous in accordance with Directive 1999/45/EC. 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 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.

Chemical Safety Assessment

A Chemical Safety Assessment is not required for this/these products
The mixture is registered as a plant protection product under Directive 91/414.
Refer to the label for exposure assessment information.

16. OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R22 Harmful if swallowed.
R36 Irritating to eyes.
R36/37/38 Irritating to eyes, respiratory system and skin.
R36/38 Irritating to eyes and skin.
R37/38 Irritating to respiratory system and skin.
R41 Risk of serious damage to eyes.
R43 May cause sensitization by skin contact.
R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R50 Very toxic to aquatic organisms.
R53 May cause long-term adverse effects in the aquatic environment.

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

H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Other information professional use



EQUATION[®] PRO

Version 4.1

Revision Date 20.10.2011

Ref. 130000000279

Further information

Before use read DuPont's safety information.

[®] Registered trademark of E.I. du Pont de Nemours and Company

Take notice of the directions of use on the label.

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.