

**EQUATION® PRO**

Version 3.2

Revision Date 09.11.2010

Ref.130000000279

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

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product information**

Product name : EQUATION® PRO

 Synonyms : DPX-KX007 WG
 : B10474623

Use of the Substance/Mixture : Fungicide

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2. HAZARDS IDENTIFICATION

Harmful if swallowed.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	EC-No.	Registration number	Classification	Concentration [%]
Cymoxanil	57966-95-7	261-043-0		Xn; R22 R43 N; R50 -R53	30
Famoxadone	131807-57-3			Xn; R48/22 N; R50 -R53	22,5
Lignosulfonic acid, sodium salt, sulfomethylated	68512-34-5			Xi; R36	>= 15 - < 20
Sodium Methylnaphthalenesulfonate	26264-58-4	247-564-6		Xi; R36/38	>= 1 - < 5
Fumaric acid	110-17-8	203-743-0		Xi; R36	>= 1 - < 5

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Lignin, alkali, reaction products with disodium sulfite and formaldehyde	105859-97-0				>= 1 - < 5
Sodium dihydrogenorthophosphate	7558-80-7	231-449-2		Xi; R36/37/38	>= 1 - < 5
Sodium dioctyl sulfosuccinate	577-11-7	209-406-4		Xi; R36/38 R52 Xn; R20	>= 1 - < 5

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

4. 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 : Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- 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.

5. FIRE-FIGHTING MEASURES

- 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),
- Specific hazards during fire fighting : Hazardous decomposition products formed under fire conditions. Carbon dioxide (CO₂) nitrogen oxides (NO_x)
- Special protective equipment for fire-fighters : 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.



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6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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. Wash hands before breaks and immediately after handling the product. 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.

Storage

- Requirements for storage areas and containers : Store in original container. Keep in properly labelled containers. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only. 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. Never allow product to get in contact with water during storage.
- Other data : Stable under recommended storage conditions.



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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures

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

Personal protective equipment

Respiratory protection : Manufacturing and processing work: Half mask with a particle filter FFP2 (EN149)

Respiratory protection : Mixer and loaders must wear: Half mask with a particle filter FFP2 (EN149)

Respiratory protection : Spray application - outdoor: Half mask with a particle filter FFP3 (EN149)

Respiratory protection : Spray application - indoor: Half mask with combination filter A2/P2 (EN 141)

Hand protection : Material: Nitrile rubber
 Glove thickness: 0,4 - 0,7 mm
 Glove length : Gauntlets
 Protection index: Class 6
 Wearing time: > 480 min

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., The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it., Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough., Before removing gloves clean them with soap and water.

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

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 Rubber or plastic boots

Spray application - outdoor: Full protective clothing Type 4 (EN 14605) Rubber or plastic boots

Spray application - indoor: Full protective clothing Type 4 (EN 14605) Rubber or plastic boots

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.

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Dispose of rinse water in accordance with local and national regulations.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : granules,
 Colour : brown,
 Odour : sweet,
 pH : 5 - 7 at 10 g/l (20 °C)
 Melting point/range : Not available for this mixture.
 Flash point : not applicable
 Flammability (solid, gas) : Does not sustain combustion.
 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
 Bulk density : 580 kg/m³
 Solubility/qualitative : dispersible
 Water solubility : , dispersible

10. STABILITY AND REACTIVITY

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.
 Materials to avoid : No materials to be especially mentioned.
 Hazardous reactions : No dangerous reaction known under conditions of normal use. Polymerization will not occur. No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

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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 inhalation toxicity	:	
• Cymoxanil	:	LC50/ 4 h/ rat : > 5,06 mg/l
• Famoxadone	:	LC50/ 4 h/ rat : > 5,3 mg/l
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	:	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
Mutagenicity assessment	:	
Cymoxanil	:	Did not show mutagenic effects in animal experiments., Evidence suggests this substance does not cause genetic damage in cultured mammalian cells., Evidence suggests this substance does not cause genetic damage in cultured bacterial cells.
Famoxadone	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Did not cause genetic damage in animals.
Carcinogenicity assessment	:	
• Cymoxanil	:	Did not show carcinogenic effects in animal experiments.
• Famoxadone	:	Did not show carcinogenic effects in animal experiments.
Toxicity to reproduction assessment	:	
• Cymoxanil	:	Animal testing did not show any effects on fertility.
• Famoxadone	:	Animal testing showed effects on reproduction at levels equal to or above those causing parental toxicity.

12. ECOLOGICAL INFORMATION**Elimination information (persistence and degradability)**

Biodegradability	:	Not readily biodegradable. Estimation based on data obtained on active ingredient.
Bioaccumulation	:	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).

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Ecotoxicity effects

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

static test LC50/ 96 h/ Oncorhynchus mykiss (rainbow trout) :: 0,040 mg/l
Method: OECD Test Guideline 203
(Data on the product itself) Information source: Internal study report

Toxicity to algae : / EbC50/ 72 h/ Pseudokirchneriella subcapitata: 4,04 mg/l
Method: Directive 67/548/EEC, Annex V, C.3.
(Data on the product itself) Information source: Internal study report

/ 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 daphnia : flow-through test / EC50/ 48 h/ Daphnia: 0,054 mg/l
Method: OECD Test Guideline 202
(Data on the product itself) Information source: Internal study report

Chronic toxicity to fish

• Cymoxanil : / NOEC/ 21 d/ Oncorhynchus mykiss (rainbow trout): 0,22 mg/l

• Cymoxanil : / NOEC/ 97 d/ Oncorhynchus mykiss (rainbow trout): 0,00098 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

13. DISPOSAL CONSIDERATIONS

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.

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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)

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

Marine pollutant: Marine pollutant

Further information : ICAO / IATA cargo aircraft only

15. REGULATORY INFORMATION**Labelling according to EC Directives**

Symbol(s) : Xn Harmful
 N Dangerous for the environment

Hazardous components: Cymoxanil
 Famoxadone

R-phrases) : R22 Harmful if swallowed.
 R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases) : 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.
 S23 Do not breathe spray.
 S28 After contact with skin, wash immediately with plenty of soap and water.
 S35 This material and its container must be disposed of in a safe way.
 S46 If swallowed, seek medical advice immediately and show this



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S57	container or label. 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).

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

Special labelling of certain mixtures : Avoid spray-drift onto adjacent crops, grazing, rivers, dams and areas not under treatment.

Sensitising components contains:
Cymoxanil

May produce an allergic reaction.

16. OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R20	Also harmful by inhalation.
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.
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.
R52	Harmful to aquatic organisms.
R53	May cause long-term adverse effects in the aquatic environment.

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.

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