

BRAVO 500 SC

Version 7

Revision Date 10.09.2004

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

PRODUCT INFORMATION

Product name : BRAVO 500 SC
Design Code : A7867A
Use : Fungicide
Company : Syngenta Crop Protection AG
 Postfach
 CH-4002 Basel
 Switzerland
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Harmful



Dangerous for the environment

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Chemical Name	CAS-No.	EC-No.	Symbol(s)	R-phrase(s)	Concentration
chlorothalonil	1897-45-6	217-588-1	T+, N	R26 R37 R40 R41 R43 R50/53	40 % W/W
1,2-propanediol	57-55-6	200-338-0			>= 5 - <= 10 % W/W

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

3. Hazards identification

Harmful by inhalation.
 Irritating to eyes and respiratory system.
 Limited evidence of a carcinogenic effect.
 May cause sensitization by skin contact.
 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

General advice : Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control center or physician, or going for treatment.

Inhalation : Remove to fresh air.
 If breathing is irregular or stopped, administer artificial respiration.

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- Inhalation** : Remove to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or Poison Control Centre immediately.
- Skin contact** : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use.
- Eye contact** : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label.
Do not induce vomiting.
- Medical advice** : There is no specific antidote available. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media** : Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
alcohol-resistant foam
water spray
- Extinguishing media which must not be used for safety reasons** : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards during fire fighting** : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health.
- Special protective equipment for fire-fighters** : In the event of fire, wear self-contained breathing apparatus.
- Further information** : Do not allow run-off from fire fighting to enter drains or water courses.
Cool closed containers exposed to fire with water spray.

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6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Refer to protective measures listed in sections 7 and 8.
- Environmental precautions** : Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.
- Methods for cleaning up** : Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
- Additional advice** : If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE**HANDLING**

- Advice on safe handling** : No special technical protective measures required.
No special handling advice required.
Avoid contact with skin and eyes.
When using, do not eat, drink or smoke.
For personal protection see section 8.

STORAGE

- Requirements for storage areas and containers** : No special storage conditions required.
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.
- Other data** : Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Components	Exposure limit(s)	Value type	Source
chlorothalonil	0.1 mg/m ³	8 h TWA	SYNGENTA
propane-1,2-diol	10 mg/m ³ 470 mg/m ³	Particulates Total (vapour & particulates)	8 h TWA UK HSE

ENGINEERING MEASURES

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

If airborne mists or vapors are generated, use local exhaust ventilation controls.

Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.

Where necessary, seek additional occupational hygiene advice.

PERSONAL PROTECTIVE EQUIPMENT

- Protective measures** : The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice. Personal protective equipment should be certified to appropriate standards.
- Respiratory protection** : A combination gas, vapor and particulate respirator may be necessary until effective technical measures are installed. Protection provided by air-purifying respirators is limited. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection** : Chemical resistant gloves should be used. Gloves should be certified to an appropriate standard. Gloves should have a minimum breakthrough time that is appropriate to the duration of exposure. The breakthrough time of gloves varies according to the thickness, material and manufacturer. Gloves should be changed when breakthrough is suspected. Suitable material
nitrile rubber
- Eye protection** : If eye contact is possible, use tight-fitting chemical safety goggles.
- Skin and body protection** : Assess the exposure and select chemical resistant clothing based on the potential for contact and the permeation / penetration characteristics of the clothing material. Wash with soap and water after removing protective clothing. Decontaminate clothing before re-use, or use disposable

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equipment (suits, aprons, sleeves, boots, etc.)
Wear as appropriate:
impervious protective suit

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: suspension
Colour	: off-white to light brown
Odour	: pungent, weak
pH	: 6 - 9
Melting point/range	: -5 °C
Boiling point/range	: > 100 °C
Oxidizing properties	: not oxidizing
Explosive properties	: Not explosive
Density	: 1.24 g/cm ³
Water solubility	: Miscible

10. STABILITY AND REACTIVITY

Hazardous decomposition products	: Combustion or thermal decomposition will evolve toxic and irritant vapors.
Hazardous reactions	: None known. Hazardous polymerisation does not occur. Stable under normal conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: LD50 rat, 4,200 mg/kg
Acute inhalation toxicity	: LC50 rat, > 1.96 mg/l, 4 h
Acute dermal toxicity	: LD50 rabbit, > 20,000 mg/kg
Skin irritation	: rabbit: slight
Eye irritation	: rabbit: moderately irritant
Long term toxicity	

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Did not show mutagenic effects in animal experiments.

Chlorothalonil is reported as a high dose threshold carcinogen in rats and mice.

Did not show reproductive toxicity effects in animal experiments

Did not show teratogenic effects in animal experiments.

This is not considered to be a risk to man when handled and used as directed on the label., This information refers to Chlorothalonil

12. ECOLOGICAL INFORMATION**ELIMINATION INFORMATION (PERSISTENCE AND DEGRADABILITY)**

Bioaccumulation : Chlorothalonil has low potential for bioaccumulation

Stability in water : Chlorothalonil is not persistent in water

Stability in soil : Chlorothalonil is not persistent in soil

Mobility : Chlorothalonil has low to slight mobility in soil

ECOTOXICITY EFFECTS

Toxicity to fish : LC50 Rainbow trout, 0.195 mg/l , 96 h

Toxicity to aquatic invertebrates : EC50 Daphnia magna (water flea), 0.882 mg/l , 24 h

Toxicity to algae : ERC50 Pseudokirchneriella subcapitata (green algae), 0.521 mg/l , 72 h

13. DISPOSAL CONSIDERATIONS

Product : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Empty remaining contents.
Triple rinse containers.
Empty containers should be taken for local recycling or waste disposal.
Do not re-use empty containers.

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14. TRANSPORT INFORMATION**Land transport***ADR/ RID:*

UN-No: 3082
Class: 9
Danger Label Number : 9
Packaging group III
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CHLOROTHALONIL 50%)

Sea transport*IMDG:*

UN-No: 3082
Class: 9
Danger Label Number : 9
Packaging group: III
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CHLOROTHALONIL 50%)

Marine pollutant : Marine pollutant

Air transport*IATA-DGR*

Regulation: Not dangerous goods

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

Hazardous components which must be listed on the label:

- chlorothalonil

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

R-phrase(s) : R20 Harmful by inhalation.
R36/37 Irritating to eyes and respiratory system.

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	R40	Limited evidence of a carcinogenic effect.
	R43	May cause sensitization by skin contact.
	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	: 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.
	S36/37	Wear suitable protective clothing and gloves.
	S57	Use appropriate container to avoid environmental contamination.
Exceptional labelling of special preparations	: To avoid risks to man and the environment, comply with the instructions for use.	
Note	: The preparation is classified as dangerous in accordance with Directive 1999/45/EC.	

16. OTHER INFORMATION

Further information

Text of R phrases mentioned in Section 2:

R26	Very toxic by inhalation.
R37	Irritating to respiratory system.
R40	Limited evidence of a carcinogenic effect.
R41	Risk of serious damage to eyes.
R43	May cause sensitization by skin contact.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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