COPY

L163971 ZIMB/02Q PPE 4010092

Bravo® 720SC

syngenta®

Reg. No.:
05-B-7-18

5 Litres

CAUTION

HARMFUL IF SWALLOWED

TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE.

BEFORE YOU OPEN THE CONTAINER READ THE ENTIRE LABEL.

A non-systemic broad spectrum contact fungicide for the preventative control of fungal diseases on tobacco, coffee, groundnuts, potatoes, tomatoes, cucurbits, lawns / turf and apples.

Composition **(m/v)**
Chlorothalonil ..... 720 g / litre
Inert ingredients ..... up to 1 litre
Chemical group: nitrile

Shelf Life: Minimum 2 years if stored in a cool dry place in original unopened container.

Manufactured by:
Syngenta Crop Protection AG
Basle, Switzerland

Registered by:
Syngenta Agro Services
P.O. Box 1088, Harare
Suite Za, Julia's Parade, Sam Levy,
Borrowdale, Tel.: 0772 402 477

Emergency Call Number: Syngenta Alarm Centre in Huddersfield, UK
Tel.: +44 1484 538 444
Fax: +44 1484 554 093

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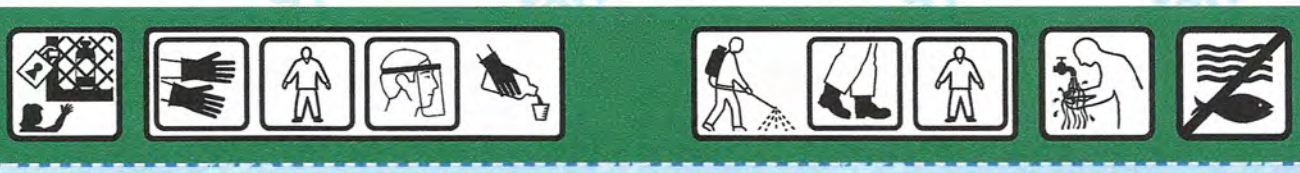
TM



Por favor, eliminar antes de imprimir.

S-PAC	DESCRIPTION: LBL S PANEL L H 130X140 MM	SCALE: 1:1	ISSUE NO: SYN003	ISSUE DATE: 30.07.2009	256207

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BRAVO 72SC

Version 2 - This version replaces all previous versions.
Revision Date 15.07.2014 Print Date 15.07.2014

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name : **BRAVO 72SC**

Design code : A12531B

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

Use : Fungicide

1.3 Details of the supplier of the safety data sheet

Company : Syngenta Crop Protection AG
Postfach
CH-4002 Basel
Switzerland

Telephone : +41 61 323 11 11

Telefax : +41 61 323 12 12

E-mail address : sds.ch@syngenta.com

1.4 Emergency telephone number

Emergency telephone number : +44 1484 538444

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EU) 1272/2008

Acute toxicity (Oral)	Category 4	H302
Skin sensitisation	Category 1	H317
Acute toxicity (Inhalation)	Category 4	H332
Specific target organ toxicity - single exposure	Category 3	H335
Carcinogenicity	Category 2	H351
Acute aquatic toxicity	Category 1	H400
Chronic aquatic toxicity	Category 1	H410

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC

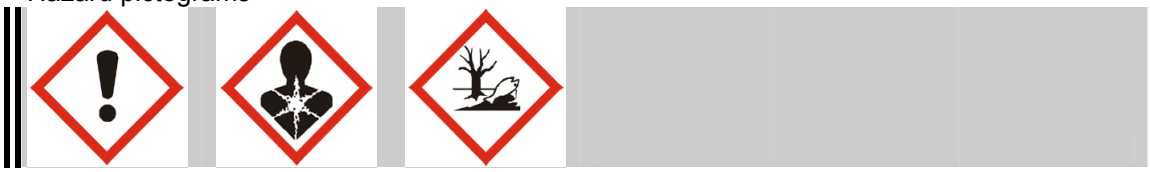
Xn, Harmful
N, Dangerous for the environment
R20/22: Harmful by inhalation and if swallowed.
R37: Irritating to respiratory system.
R40: Limited evidence of a carcinogenic effect.
R43: May cause sensitisation by skin contact.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic en-

vironment.

2.2 Label elements

Labelling: Regulation (EC) No. 1272/2008

Hazard pictograms



Signal word	:	Warning	
Hazard statements	:	H302	Harmful if swallowed.
		H317	May cause an allergic skin reaction.
		H332	Harmful if inhaled.
		H335	May cause respiratory irritation.
		H351	Suspected of causing cancer.
		H410	Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	P102	Keep out of reach of children.
		P280	Wear protective gloves/ protective clothing.
		P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P308 + P313	IF exposed or concerned: Get medical advice/ attention.
		P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
		P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
		P391	Collect spillage.
		P501	Dispose of contents/ container to an approved waste disposal plant.
Supplemental information	:	EUH401	To avoid risks to human health and the environment, comply with the instructions for use.

Hazardous components which must be listed on the label:

- chlorothalonil

Labelling: EU Directives 67/548/EEC or 1999/45/EC

Symbol(s)

Harmful

Dangerous for the environment

R-phrase(s)	:	R20/22	Harmful by inhalation and if swallowed.
		R37	Irritating to respiratory system.
		R40	Limited evidence of a carcinogenic effect.
		R43	May cause sensitisation by skin contact.
		R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrase(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.

Additional Labelling : To avoid risks to man and the environment, comply with the instructions for use.

Hazardous components which must be listed on the label:
- chlorothalonil

2.3 Other hazards

None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration
chlorothalonil	1897-45-6 217-588-1	T+, N R26 R37 R40 R41 R43 R50/53	Skin Sens.1; H317 Eye Dam.1; H318 Acute Tox.2; H330 STOT SE3; H335 Carc.2; H351 Aquatic Acute1; H400 Aquatic Chronic1; H410	54 % W/W
propane-1,2-diol	57-55-6 200-338-0	-	-	1 - 5 % W/W
silicon dioxide, chemically prepared	112926-00-8 7631-86-9 231-545-4 01-2119379499-16-0000	-	-	1 - 5 % W/W

Substances for which there are Community workplace exposure limits.
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

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 : Move the victim 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.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Medical advice : There is no specific antidote available.
Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
Alcohol-resistant foam
or
Water spray

Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

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.

5.3 Advice for firefighters

Wear full protective clothing and self-contained breathing apparatus.

Do not allow run-off from fire fighting to enter drains or water courses.
Cool closed containers exposed to fire with water spray.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect 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).

If the product contaminates rivers and lakes or drains inform respective authorities.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8.
Refer to disposal considerations listed in section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

No special protective measures against fire required.
Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

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.

7.3 Specific end use(s)

Registered Crop Protection products:For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	Exposure limit(s)	Type of exposure limit	Source
chlorothalonil	0.1 mg/m3	8 h TWA	SYNGENTA
propane-1,2-diol	10 mg/m3 (Particulates) 150 ppm, 470 mg/m3 (Total (vapour & particulates))	8 h TWA 8 h TWA	UK HSE UK HSE
silicon dioxide, chemically prepared	4 mg/m3 10 mg/m3 3,000 ppm 4 mg/m3 2.4 mg/m3 (Respirable dust) 6 mg/m3 (Inhalable fraction)	8 h TWA 8 h TWA IDLH 8 h TWA 8 h TWA 8 h TWA	SUVA ACGIH NIOSH DFG UK HSE UK HSE

The following recommendations for exposure controls/personal protection are intended for the manufacture, formulation and packaging of the product.

8.2 Exposure controls

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.
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 particulate filter 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	:	Suitable material:Nitrile rubber Break through time: > 480 min Glove thickness: 0.5 mm 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 discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye protection is not usually required. Follow any site specific eye protection policies.
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 equipment (suits, aprons, sleeves, boots, etc.) Wear as appropriate: impervious protective suit

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Form	:	suspension
Colour	:	No data available
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	No data available
Melting point/range	:	-5 °C
Boiling point/boiling range	:	100 °C
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	1.333 g/cm3 at 20 °C
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature		No data available
Thermal decomposition	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	not oxidizing

9.2 Other information

: No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No information available.

10.2 Chemical stability

No information available.

10.3 Possibility of hazardous reactions

None known.
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

No information available.

10.5 Incompatible materials

No information available.

10.6 Hazardous decomposition products

Combustion or thermal decomposition will evolve toxic and irritant vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity	:	LD50 female rat, 2,000 mg/kg The toxicological data has been taken from products of similar composition.
Acute inhalation toxicity	:	LC50 male rat, > 1.5 mg/l , 4 h The toxicological data has been taken from products of similar composition.
	:	LC50 female rat, < 1.5 mg/l , 4 h The toxicological data has been taken from products of similar composition.
Acute dermal toxicity	:	LD50 male and female rabbit, > 2,000 mg/kg The toxicological data has been taken from products of similar composition.
Skin corrosion/irritation	:	rabbit: Mildly irritating The toxicological data has been taken from products of similar composition.
Serious eye damage/eye irritation	:	rabbit: Mildly irritating
Respiratory or skin sensitisation	:	Buehler Test guinea pig: A skin sensitizer in animal tests. The toxicological data has been taken from products of similar composition.

Germ cell mutagenicity

chlorothalonil	:	Did not show mutagenic effects in animal experiments.
silicon dioxide, chemically prepared	:	Did not show mutagenic effects in animal experiments.

Carcinogenicity

chlorothalonil	:	Chlorothalonil causes kidney tumours in rats and mice via a non-gentoxic mode of action secondary to target organ toxicity.
silicon dioxide, chemically prepared	:	Did not show carcinogenic effects in animal experiments.

Reproductive toxicity

chlorothalonil	:	Did not show reproductive toxicity effects in animal experiments.
silicon dioxide, chemically	:	Did not show reproductive toxicity effects in animal experiments.

prepared

STOT - single exposure : May cause respiratory irritation.

STOT - repeated exposure
chlorothalonil : No adverse effect has been observed in chronic toxicity tests.
silicon dioxide, chemically prepared : No adverse effect has been observed in chronic toxicity tests.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish : LC50 Oncorhynchus mykiss (rainbow trout), 61 µg/l , 96 h
Based on test results obtained with similar product.

Toxicity to aquatic invertebrates : EC50 Daphnia magna (Water flea), 180 µg/l , 48 h
Based on test results obtained with similar product.

Toxicity to aquatic plants
chlorothalonil : EbC50 Selenastrum capricornutum (green algae), 0.21 mg/l , 120 h

12.2 Persistence and degradability

Stability in water
chlorothalonil : Degradation half life: < 5 d at 20 °C
Not persistent in water.

Stability in soil
chlorothalonil : Degradation half life: ca. 7 d
Not persistent in soil.

12.3 Bioaccumulative potential

chlorothalonil : Chlorothalonil has low potential for bioaccumulation.

12.4 Mobility in soil

chlorothalonil : Chlorothalonil has low to slight mobility in soil.

12.5 Results of PBT and vPvB assessment

chlorothalonil : This substance is not considered to be very persistent nor very bioaccumulating (vPvB).
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

12.6 Other adverse effects

Other information : Classification of the product is based on the summation of the concentrations of classified components.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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 to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14: TRANSPORT INFORMATION

Land transport (ADR/RID)

14.1 UN number:	UN 3082
14.2 UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL)
14.3 Transport hazard class(es):	9
14.4 Packing group:	III
Labels:	9
14.5 Environmental hazards :	Environmentally hazardous
Tunnel restriction code:	E

Sea transport(IMDG)

14.1 UN number:	UN 3082
14.2 UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL)
14.3 Transport hazard class(es):	9
14.4 Packing group:	III
Labels:	9
14.5 Environmental hazards :	Marine pollutant

Air transport (IATA-DGR**)**

14.1 UN number:	UN 3082
14.2 UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL)
14.3 Transport hazard class(es):	9
14.4 Packing group:	III
Labels:	9

14.6 Special precautions for user

none

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

GHS-Labelling

Hazard pictograms

Signal word	:	Warning	
Hazard statements	:	H302	Harmful if swallowed.
		H317	May cause an allergic skin reaction.
		H332	Harmful if inhaled.
		H335	May cause respiratory irritation.
		H351	Suspected of causing cancer.
		H410	Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	P102	Keep out of reach of children.
		P280	Wear protective gloves/ protective clothing.
		P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P308 + P313	IF exposed or concerned: Get medical advice/ attention.
		P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
		P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
		P391	Collect spillage.
		P501	Dispose of contents/ container to an approved waste disposal plant.
Remarks	:	Classified using all GHS hazard classes and categories. Where the GHS contains options, the most conservative option has been chosen. Regional or national implementations of GHS may not implement all hazard classes and categories.	

Hazardous components which must be listed on the label:

- chlorothalonil

15.2 Chemical Safety Assessment
A Chemical Safety Assessment is not required for this substance.

SECTION 16: OTHER INFORMATION

Further information

Full text of R-phrases referred to under sections 2 and 3:

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 sensitisation by skin contact.
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 sections 2 and 3.

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

ADR:	European Agreement Concerning the International Carriage of Dangerous Goods by Road	RID:	Regulations concerning the International Carriage of Dangerous Goods by Rail
IMDG:	International Maritime Code for Dangerous Goods	IATA-DGR:	International Air Transport Association Dangerous Goods Regulations
LC50:	Lethal concentration, 50%	LD50:	Lethal dose, 50%
EC50:	Effective dose, 50%	GHS:	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

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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