



# Signum®



MAPP 11450

A water dispersible granule containing 26.7% w/w boscalid and 6.7% w/w pyraclostrobin.

Signum is a fungicide with protectant and systemic activity for use against certain diseases in broccoli, Brussels sprout, cabbage, calabrese, cauliflower, strawberry (outdoor and protected), carrot, lettuce (outdoor and protected), field beans, combining peas, vining peas and blackcurrants.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

#### SAFETY PRECAUTIONS

##### Operator protection

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective clothing:

WEAR SUITABLE PROTECTIVE GLOVES when handling the product or handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS)

AND SUITABLE PROTECTIVE GLOVES when applying by hand held equipment.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH HANDS before meals and after work.

IF SWALLOWED, seek medical advice immediately and show this container or label.

##### Environmental protection

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.

To protect aquatic organisms respect an unsprayed buffer zone to surface water bodies in line with LERAP requirements.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5m of the top of the bank of a static or flowing waterbody, unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1m of the top of a ditch which is dry at the time of application. Aim spray away from water.

DO NOT ALLOW DIRECT SPRAY from hand-held sprayers to fall within 1m of the top of the bank of a static or flowing waterbody. Aim spray away from water.

DO NOT ALLOW DIRECT SPRAY from broadcast air-assisted sprayers to fall within 20m of the top of the bank of a static or flowing waterbody unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 5m of the top of a ditch which is dry at the time of application. Aim spray away from water. This product qualifies for inclusion within the Local Environmental Risk Assessment

for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer or broadcast air-assisted sprayer, either a LERAP must be carried out in accordance with GDD's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for inspection for three years. DO NOT APPLY MORE THAN 6 kg/ha Signum to the same area of land per annum.

##### Storage and disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSUFFS.

KEEP OUT OF REACH OF CHILDREN.

STORE IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.

Store in a suitable pesticide store. Keep dry and protect from frost.



The Voluntary Initiative

## 2.5 kg e

This label is compliant with the CPA Voluntary Initiative Guidance

Supplied by:

BASF plc

Crop Protection

PO Box 4, Earl Road

Cheadle Hulme, CHEADLE

Cheshire SK8 6QG

Tel: 0161 485 6222

Emergency Information:

(24 hours freephone):

0049 180 2273112

Technical Enquiries:

0845 602 2553 (office hours)

### UN 3077

ENVIRONMENTALLY HAZARDOUS

SUBSTANCE, SOLID, N.O.S.

(contains boscalid, pyraclostrobin)

Marine pollutant

**BASF**  
We create chemistry

81093406GB1124



® = Registered trademark of BASF



# Signum®

A water dispersible granule containing  
26.7% w/w boscalid and  
6.7% w/w pyraclostrobin



**WARNING:**  
**HARMFUL IF SWALLOWED.**  
**VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.**

WASH WITH PLENTY OF WATER AND SOAP THOROUGHLY AFTER HANDLING.  
DO NOT EAT, DRINK OR SMOKE WHEN USING THIS PRODUCT.  
IF SWALLOWED: CALL A POISON CENTER OR DOCTOR/PHYSICIAN IF YOU FEEL  
UNWELL.  
RINSE MOUTH.  
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.  
COLLECT SPILLAGE.

**To avoid risks to human health and the environment, comply with the  
instructions for use.**

This product is approved under the Plant Protection Products Regulations 2005.

## IMPORTANT INFORMATION

**FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL FUNGICIDE, as directed below:**

Crops	Maximum individual dose	Maximum total dose	Latest time of application
Broccoli, Brussels sprout, cabbage, calabrese and cauliflower	1.0 kg/ha	3.0 kg/ha/crop	14 days before harvest
Strawberry (outdoor and protected)	1.8 kg/ha	3.6 kg/ha/year	3 days before harvest
Carrots	1.0 kg/ha	2.0 kg/ha/crop	14 days before harvest
Lettuce (outdoor and protected)	1.5 kg/ha	3.0 kg/ha/crop	14 days before harvest
Field beans and combining peas	1.0 kg/ha	2.0 kg/ha/crop	21 days before harvest
Blackcurrants (pre-harvest) (outdoor)	1.5 kg/ha	3.0 kg/ha/year	3 days before harvest
Blackcurrants (post-harvest) (outdoor)	1.5 kg/ha	1.5 kg/ha/year	Not applicable
Vining peas	1.0 kg/ha	1.0 kg/ha/crop	14 days before harvest

### Other specific restrictions:

Applications to lettuce must only be made between 1 April and 31 October.

**READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.**





## DIRECTIONS FOR USE

**IMPORTANT:** This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

### 1. Restrictions/Warnings

- 1.1 Processed Crops – Consult processors before use on crops destined for processing. Tests have indicated that no taints were detected in blackcurrant juice; quick frozen or canned vining peas and canned combining peas.
- 1.2 Applications to lettuce must only be made between 1 April and 31 October.
- 1.3 DO NOT APPLY MORE THAN 6 kg/ha of Signum to the same area of land per annum.

### 2. Disease Control

Signum is a fungicide with protectant and systemic activity for the control of a range of diseases in broccoli, Brussels sprout, cabbage, calabrese, cauliflower, strawberry (outdoor and protected), carrot, lettuce (outdoor and protected), field beans, combining peas, vining peas and blackcurrants, as summarised below:

	Blackcurrant	Brussels sprout	Cabbage	Cauliflower, broccoli, calabrese	Strawberry*** (outdoor and protected)	Carrot	Lettuce (protected and outdoor)	Field beans (winter and spring)	Peas (combining and vining)
American gooseberry mildew <i>Sphaerotheca mors-uvae</i>	MC*								
Blackcurrant leaf spot <i>Drapenopeziza ribis</i>	MC*								
Grey mould - <i>Botrytis cinerea</i>	C*				C		C		
Bean rust - <i>Uromyces fabae</i>								C	
Chocolate spot - <i>Botrytis spp.</i>								MC	
White blister - <i>Albugo candida</i>		C	C*						
Dark leaf spot <i>Alternaria spp.</i>			C	C					
Ringspot <i>Mycosphaerella brassicola</i>		UC	UC	UC					
Bottom rot <i>Rhizoctonia solani</i>							C**		
Watery soft rot - <i>Sclerotinia spp.</i>							C**		
Powdery mildew <i>Erysiphe heraclei</i> <i>Sphaerotheca macularis</i>					C	C			
Alternaria leaf blight <i>Alternaria dauci</i>							MC		
Sclerotinia rot <i>Sclerotinia sclerotiorum</i>							MC		
Blackspot <i>Colletotrichum acutatum</i>					C				
Leaf and pod spot <i>Ascochyta pisi</i>									MC





- C = control  
MC = Moderate control  
UC = Useful level of control  
\* = 'Qualified minor use' based on limited data  
\*\* = Lower and more variable levels of control may be seen on outdoor crops  
\*\*\* = Reduced levels of control on protected strawberry are likely for the listed diseases

## 2.1 Resistance

In order to minimise risk of resistance:

Signum contains the QoI fungicide, pyraclostrobin and the SDHI (carboxamide) fungicide, boscalid. Signum should be used in accordance with FRAC resistance management advice for QoI and carboxamide mixtures.

Avoid using consecutive applications of Signum. Apply Signum in alternation with fungicides from a different cross-resistance group with satisfactory efficacy against the targeted diseases.

In line with FRAC guidance, the number of Signum applications should be no more than half of the total number of fungicide applications per season. Use no more than a maximum of three applications of Signum per crop in brassicas; no more than three applications per year in blackcurrants and no more than two applications per crop in other crops.

## 3. Crops

### 3.1 Brassicas (broccoli, Brussels sprout, cabbage, calabrese, cauliflower)

#### Time of Application

Apply Signum as a protectant spray or at the first sign of disease. Repeat sprays at 3–4 week intervals depending on disease pressure. Three applications can be made but a minimum of 14 days must elapse between the last spray and harvest.

#### Rate of Application

Apply 1.0 kg/ha of Signum in a minimum of 200 litres of water per hectare. In dense crops, increase the water volume up to a maximum of 1000 litres of water per hectare to achieve adequate penetration and good coverage of the crop.

### 3.2 Strawberries

#### Time of Application

For optimum control of grey mould, apply Signum as a protectant spray from the beginning of bloom (white bud).

For the control of powdery mildew and blackspot, apply Signum as a protectant spray before the appearance of disease symptoms.

Applications should be made in sequence with other products as part of a fungicide spray programme applied during flowering at 7-10 day intervals.

Two applications can be made but a minimum of 3 days must elapse between the last spray and harvest.

#### Rate of Application

Apply 1.8 kg of Signum in a water volume of 450-2000 litres of water per hectare, ensuring good coverage of the foliage and fruitlets.





#### Qualified minor use recommendation

Signum may be applied at 1.8 kg per hectare in 400 litres water per hectare although efficacy at this reduced volume has not been evaluated. Therefore application at 400 litres water per hectare is at user's risk with regard to biological efficacy.

### **3.3 Carrots**

#### Time of Application

Apply Signum as a protectant spray or at the first sign of disease. Repeat sprays at 7–14 day intervals depending on disease pressure. Two applications can be made but a minimum of 14 days must elapse between the last spray and harvest.

#### Rate of Application: 0.75–1.0 kg/ha

For control of powdery mildew and moderate control of alternaria leaf blight, apply 0.75 kg/ha of Signum in a water volume of 200–900 litres of water per hectare, ensuring good coverage of the foliage.

For moderate control of sclerotinia rot, increase dose rate to 1.0 kg/ha of Signum in a water volume of 200–900 litres of water per hectare, ensuring good coverage of the foliage.

### **3.4 Lettuce**

#### Time of Application

Apply Signum as a protectant spray from 1-2 weeks after planting. Apply sprays at 10–14 day intervals depending on disease pressure. Two applications can be made but a minimum of 14 days must elapse between the last spray and harvest.

#### Rate of Application

Apply 1.5 kg of Signum in a water volume of 200-900 litres of water per hectare, ensuring good coverage of the foliage.

### **3.5 Field Beans**

#### Time of Application

Apply Signum as a protectant spray or at the first sign of disease. For optimum control of bean rust and moderate control of chocolate spot, apply sprays from early flower and repeat at a 3–4 week interval, depending on disease pressure. Two applications can be made but a minimum of 21 days must elapse between the last spray and harvest.

#### Rate of Application

Apply 1.0 kg/ha of Signum in a minimum volume of 200–300 litres of water per hectare, ensuring good coverage of the foliage.

### **3.6 Combining peas**

#### Time of Application

Apply Signum as a protectant spray or at the first sign of disease. For moderate control of leaf and pod spot (*Ascochyta blight*), apply sprays from early flower and repeat at a 2–3 week interval, depending on disease pressure. Two applications can be made but a minimum of 21 days must elapse between the last spray and harvest.

#### Rate of Application

Apply 1.0 kg/ha of Signum in a minimum volume of 200–400 litres of water per hectare, ensuring good coverage of the foliage.





### **3.7 Vining peas**

#### Time of Application

For moderate control of leaf and pod spot (*Ascochyta pisi*), apply Signum as a protectant spray or at the first sign of disease. One application can be made and a minimum of 14 days must elapse between application and harvest. To maintain disease control a subsequent treatment with another product may be required 2 – 3 weeks later depending on disease pressure.

#### Rate of Application

Apply 1.0 kg/ha of Signum in a minimum volume of 200 – 400 litres of water per hectare, ensuring good coverage of the foliage.

### **3.8 Blackcurrants (qualified minor use based on limited efficacy data)**

#### Time of Application

##### *Pre-harvest treatment*

For control of grey mould (*Botrytis cinerea*), apply Signum as a protectant spray from the start of flowering.

For moderate control of American gooseberry mildew and blackcurrant leaf spot, apply Signum as a protectant spray before the appearance of disease symptoms.

Applications should be made in sequence with other products as part of a disease control programme, in which case the interval between use of Signum and subsequent fungicide treatment should be between 10–14 days, depending on disease pressure. Two applications of Signum can be made but a minimum of 3 days must elapse between the application of Signum and harvest.

##### *Post-harvest-treatment*

Signum may be used as post-harvest treatment to help protect against American gooseberry mildew and blackcurrant leaf spot infections, thus reducing the possibility of infection-induced premature leaf drop and reduced bush vigour, which may adversely affect crop yield in the subsequent year. Apply Signum as a protectant spray after blackcurrants have been harvested and before leaf senescence.

#### Rate of Application

Apply 1.5 kg of Signum in a water volume of 200 – 1000 litres of water per hectare, ensuring good coverage of the foliage and fruit.

## **4. Mixing and Spraying**

Apply as a FINE or MEDIUM spray as defined by BCPC.

Half fill the spray tank with clean water and start agitation.

Slowly add in the required amount of product.

Rinse empty containers and add rinsings to the spray tank.

Add the remainder of the water and continue agitation until spraying is complete.





**The following does not form part of the product label under the Plant Protection Products Regulations 2005**

With many products there is a general risk of resistance developing to the active ingredients. For this reason a change in activity cannot be ruled out. It is generally impossible to predict with certainty how resistance may develop because there are so many crop and use connected ways of influencing this. We therefore have to exclude liability for damage or loss attributable to any such resistance that may develop. To help minimise any loss in activity the BASF recommended rate should in all events be adhered to.

Numerous, particularly regional or regionally attributable, factors can influence the activity of the product. Examples include weather and soil conditions, crop plant varieties, crop rotation, treatment times, application amounts, admixture with other products, appearance of organisms resistant to active ingredients and spraying techniques. Under particular conditions a change in activity or damage to plants cannot be ruled out. The manufacturer or supplier is therefore unable to accept any liability in such circumstances. All goods supplied by us are of high grade and we believe them to be suitable, but as we cannot exercise control over their mixing or use or the weather conditions during and after application, which may affect the performance of the material, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded and no responsibility will be accepted by us for any damage or injury whatsoever arising from their storage, handling, application or use; but nothing should be deemed to exclude or restrict any liability upon us which cannot be excluded or restricted under the provisions of the Unfair Contract Terms Act 1977 or any similar applicable law.





**Section 6 of the Health and Safety at Work Act  
Additional Product Safety Information**

The product label provides information on a specific pesticidal use of the product; do not use otherwise, unless you have assessed any potential hazard involved, the safety measures required and that the particular use has "off-label" approval or is otherwise permitted under the Plant Protection Products Regulations.

The information on this label is based on the best available information including data from test results.

## Safety data sheet

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

#### 1.1. Product identifier

## SIGNUM

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

Relevant identified uses: crop protection product, fungicide

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

Company:  
BASF SE  
67056 Ludwigshafen  
GERMANY

Contact address:  
BASF plc  
PO Box 4, Earl Road, Cheadle Hulme, Cheadle, Cheshire  
SK8 6QG, UNITED KINGDOM

Telephone: +44 161 485-6222  
E-mail address: product-safety-north@basf.com

#### 1.4. Emergency telephone number

International emergency number: Telephone: +49 180 2273-112

### SECTION 2: Hazards Identification

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

According to Regulation (EC) No 1272/2008 [CLP]

Aquatic Acute 1  
Aquatic Chronic 1

According to Directive 67/548/EEC or 1999/45/EC

Possible Hazards: Harmful if swallowed.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. For the classifications not written out in full in this section the full text can be found in section 16.

#### 2.2. Label elements

Globally Harmonized System (GHS) in accordance with UK regulations.

Pictogram:

Signal Word:  
Warning







**Hazard Statement:**

- H302 Harmful if swallowed.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

**Precautionary Statement:**

- P264 Wash with plenty of water and soap thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

**Precautionary Statements (Response):**

- P330 Rinse mouth.
- P391 Collect spillage.

**Precautionary Statements (Disposal):**

- P501.1 Dispose of contents/container in accordance with local regulations.

According to Directive 67/548/EEC or 1999/45/EC  
Classification/labelling in accordance with UK regulations.

**Hazard symbol(s)**

- Xn Harmful.
- N Dangerous for the environment.



**R-phrases(s)**

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

**S-phrases(s)**

- S2 Keep out of the reach of children.
- S13 Keep away from food, drink and animal feeding stuffs.
- 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.

**2.3. Other hazards**

According to Regulation (EC) No 1272/2008 [CLP]  
See section 12 – Results of PBT and vPvB assessment.

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

**SECTION 3: Composition/Information on Ingredients**

**3.1. Substances**

Not applicable

**3.2. Mixtures**

Chemical nature

crop protection product, fungicide, water dispersible granules

Hazardous ingredients (GHS)

according to Regulation (EC) No. 1272/2008

- 3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-  
Content (W/W): 26.7% Aquatic Chronic 2  
CAS Number: 188425-85-6 H411





pyraclostrobin (ISO); methyl N-[2-[1-(4-chlorophenyl)-1H-pyrazol-3-yloxymethyl]phenyl](N-methoxy) carbamate

Content (W/W): 6.7%  
CAS Number: 175013-18-0  
INDEX-Number: 613-272-00-6

Acute Tox. 3 (Inhalation – mist)  
Skin Corr./Irrit. 2  
STOT SE 3 (irr. to respiratory syst.)  
Aquatic Acute 1  
Aquatic Chronic 1  
M-factor acute: 100  
H315, H331, H335, H400, H410

Sodium diisobutylnaphthalenesulphonate

Content (W/W): < 5%  
CAS Number: 27213-90-7  
EC-Number: 248-326-4

Acute Tox. 4 (Inhalation – dust)  
Acute Tox. 4 (oral)  
Skin Corr./Irrit. 2  
Eye Dam./Irrit. 1  
Aquatic Chronic 3  
H318, H315, H332, H302, H412

Ammonium sulphate

Content (W/W): < 15%  
CAS Number: 7783-20-2  
EC-Number: 231-984-1  
REACH registration number: 01-2119455044-46

Silica gel, precipitated, crystalline free

Content (W/W): < 10%  
CAS Number: 112926-00-8  
REACH registration number: 01-2119379499-16

Sodium sulphate

Content (W/W): < 5%  
CAS Number: 7757-82-6  
EC-Number: 231-820-9  
REACH registration number: 01-2119519226-43

Hazardous ingredients

according to Directive 1999/45/EC

3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-

Content (W/W): 26.7%  
CAS Number: 188425-85-6  
Hazard symbol(s): N  
R-phrases(s): 51/53

pyraclostrobin (ISO); methyl N-[2-[1-(4-chlorophenyl)-1H-pyrazol-3-yloxymethyl]phenyl](N-methoxy) carbamate

Content (W/W): 6.7%  
CAS Number: 175013-18-0  
INDEX-Number: 613-272-00-6  
Hazard symbol(s): T, N  
R-phrases(s): 23, 37/38, 50/53

Sodium diisobutylnaphthalenesulphonate

Content (W/W): < 5%  
CAS Number: 27213-90-7





EC-Number: 248-326-4  
Hazard symbol(s): Xn, Xi  
R-phrases: 20/22, 38, 41, 52/53

**Ammonium sulphate**

Content (W/W): < 15 %  
CAS Number: 7783-20-2  
EC-Number: 231-984-1  
REACH registration number: 01-2119455044-46

**Silica gel, precipitated, crystalline free**

Content (W/W): < 10 %  
CAS Number: 112926-00-8  
REACH registration number: 01-2119379499-16

**Sodium sulphate**

Content (W/W): < 5 %  
CAS Number: 7757-82-6  
EC-Number: 231-820-9  
REACH registration number: 01-2119519226-43

For the classifications not written out in full in this section, including the indication of danger, the hazard symbols, the R phrases, and the hazard statements, the full text is listed in section 16.

**SECTION 4: First-Aid Measures**

**4.1. Description of first aid measures**

Remove contaminated clothing.

If inhaled: Keep patient calm, remove to fresh air.

On skin contact: Wash thoroughly with soap and water.

On contact with eyes: Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion: Rinse mouth and then drink plenty of water.

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

Symptoms: No significant reaction of the human body to the product known.

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

Treatment: Symptomatic treatment (decontamination, vital functions).

**SECTION 5: Fire-Fighting Measures**

**5.1. Extinguishing media**

Suitable extinguishing media: dry powder, foam, water spray

Unsuitable extinguishing media for safety reasons: carbon dioxide

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

carbon monoxide, hydrogen chloride, Carbon dioxide, nitrogen oxides, organochloric compounds

The substances/groups of substances mentioned can be released in case of fire.

**5.3. Advice for fire-fighters**

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information: Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire.





## **SECTION 6: Accidental Release Measures**

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

Avoid dust formation. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

### **6.2. Environmental precautions**

Do not allow contamination of public drains or surface or ground waters. Inform local water plc if spillage enters drains and the Environment Agency (England & Wales), the Scottish Environmental Protection Agency (Scotland), or the Environment and Heritage Service (Northern Ireland) if it enters surface or ground waters. Keep people and animals away.

### **6.3. Methods and material for containment and cleaning up**

For small amounts: Contain with dust binding material and dispose of. For large amounts: Sweep/shovel up.

Avoid raising dust. Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

### **6.4. Reference to other sections**

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

## **SECTION 7: Handling and Storage**

### **7.1. Precautions for safe handling**

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

Avoid dust formation. Dust can form an explosive mixture with air. Prevent electrostatic charge – sources of ignition should be kept well clear - fire extinguishers should be kept handy.

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

Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect against moisture. Protect from direct sunlight.

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

### **7.3. Specific end use(s)**

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

## **SECTION 8: Exposure Controls/Personal Protection**

### **8.1. Control parameters**

Components with occupational exposure limits none

Refer to the current edition of HSE Guidance Note EH40 Occupational Exposure Limits (United Kingdom). For normal use and handling refer to the product label/leaflet. In all other cases the following apply.

### **8.2. Exposure controls**

#### Personal protective equipment

Respiratory protection: Respiratory protection not required.

Hand protection: Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact





(Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) and other

Eye protection: Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection: Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

#### General safety and hygiene measures

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

### SECTION 9: Physical and Chemical Properties

#### 9.1. Information on basic physical and chemical properties

Form:	solid, granules
Colour:	brown
Odour:	smoky
Odour threshold:	Not determined due to potential health hazard by inhalation.
pH value:	approx. 4 – 6 (1%(m), 20 °C) (as suspension)
Melting temperature:	approx. 142 – 144 °C (OECD Guideline 102)
Boiling point:	The data given are those of the active ingredient. The product is a non-volatile solid.
Flash point:	not applicable
Evaporation rate:	not applicable
Flammability:	not highly flammable (Directive 84/449/EEC, A.10) No dangerous quantities of flammable gases will be produced by contact with water. (Directive 92/69/EEC, A.12)
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Vapour pressure:	The product has not been tested.
Density:	approx. 1.57 g/cm <sup>3</sup> (20 °C) (OECD Guideline 109)
Relative vapour density (air):	not determined
Solubility in water:	dispersible
Partitioning coefficient n-octanol/water (log Kow):	not applicable
Self ignition:	Temperature: 246 °C (Method: Directive 92/69/EEC, A.16) No self ignition was observed up to the specified temperature.
Thermal decomposition:	150 °C, 130 kJ/kg (DSC (OECD 113)) (onset temperature) 335 °C, 130 kJ/kg (DSC (OECD 113)) (onset temperature)
Viscosity, dynamic:	not applicable
Explosion hazard:	not explosive (Directive 92/69/EEC, A.14)
Fire promoting properties:	not fire-propagating (Directive 92/69/EEC, A.17)

#### 9.2. Other information

Bulk density: 656 – 754 kg/m<sup>3</sup>





## SECTION 10: Stability and Reactivity

### 10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

### 10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

### 10.3. Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

### 10.4. Conditions to avoid

See MSDS section 7 – Handling and storage.

### 10.5. Incompatible materials

Substances to avoid: strong acids, strong bases, strong oxidizing agents

### 10.6. Hazardous decomposition products

Hazardous decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

## SECTION 11: Toxicological Information

### 11.1. Information on toxicological effects

#### Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data: LD50 rat (oral): > 2,000 mg/kg

LC50 rat (by inhalation): > 5.6 mg/l 4 h

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

LD50 rat (dermal): > 2,000 mg/kg

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

#### Irritation

Assessment of irritating effects: Not irritating to the skin. Not irritating to the eyes.

Experimental/calculated data:

Skin corrosion/irritation rabbit: non-irritant (OECD Guideline 404)

Serious eye damage/irritation rabbit: non-irritant (OECD Guideline 405)

#### Respiratory/Skin sensitization

Assessment of sensitization: There is no evidence of a skin-sensitizing potential.

Experimental/calculated data:

modified Buehler test guinea pig: Non-sensitizing.

#### Germ cell mutagenicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

#### Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: 3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-*

*Assessment of carcinogenicity:*





*In long-term studies in rats the substance induced thyroid tumors. The effect is caused by an animal specific mechanism that has no human counter part. In long-term studies in mice in which the substance was given by feed, a carcinogenic effect was not observed.*

#### Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

#### Developmental toxicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

#### Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: 3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-*

*Assessment of repeated dose toxicity:*

*Adaptive effects were observed after repeated exposure in animal studies.*

#### Other relevant toxicity information

Misuse can be harmful to health.

### **SECTION 12: Ecological Information**

#### **12.1. Toxicity**

Assessment of aquatic toxicity: Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Toxicity to fish:

LC<sub>50</sub> (96 h) 0.088 mg/l, *Oncorhynchus mykiss*

Aquatic invertebrates:

EC<sub>50</sub> (48 h) approx. 0.24 mg/l, *Daphnia magna* (OECD Guideline 202, part 1)

Aquatic plants:

EC<sub>50</sub> (72 h) 8.43 mg/l, *Agmenellum quadruplicatum*

#### **12.2. Persistence and degradability**

Assessment biodegradation and elimination (H<sub>2</sub>O): The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: 3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-*

*Assessment biodegradation and elimination (H<sub>2</sub>O):*

*Not readily biodegradable (by OECD criteria).*

*Information on: pyraclostrobin (ISO); methyl N-[2-[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxymethyl]phenyl](N-methoxy)carbamate*

*Assessment biodegradation and elimination (H<sub>2</sub>O): Not readily biodegradable (by OECD criteria).*

#### **12.3. Bioaccumulative potential**

Assessment bioaccumulation potential: The product has not been tested. The statement has been derived from the properties of the individual components.





*Information on: 3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-*

*Bioaccumulation potential:*

*Bioconcentration factor: 57 – 70 (28 d), *Oncorhynchus mykiss**

*Does not accumulate in organisms.*

*Information on: pyraclostrobin (ISO); methyl N-[2-[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxyethyl]phenyl(N-methoxy)carbamate*

*Bioaccumulation potential:*

*Bioconcentration factor: 379 – 507, *Oncorhynchus mykiss* (OECD-Guideline 305) Accumulation in organisms is not to be expected.*

#### **12.4. Mobility in soil**

Assessment transport between environmental compartments: The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: 3-Pyridinecarboxamide, 2-chloro-N-(4'-chloro[1,1'-biphenyl]-2-yl)-*

*Assessment transport between environmental compartments:*

*Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.*

*Information on: pyraclostrobin (ISO); methyl N-[2-[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxyethyl]phenyl(N-methoxy)carbamate*

*Assessment transport between environmental compartments:*

*Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.*

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

The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

#### **12.6. Other adverse effects**

The product does not contain substances that are listed in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

#### **12.7. Additional information**

Other ecotoxicological advice:

Do not discharge product into the environment without control.

### **SECTION 13: Disposal Considerations**

#### **13.1. Waste treatment methods**

Must be sent to a suitable incineration plant, observing local regulations.

The UK Environmental Protection (Duty of Care) Regulations (EP) and amendments should be noted (United Kingdom).

This product and any uncleaned containers must be disposed of as hazardous waste in accordance with the 2005 Hazardous Waste Regulations and amendments (United Kingdom)

Contaminated packaging:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.







## SECTION 14: Transport information

### Land transport

#### ADR

UN number: UN3077  
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(contains BOSCALID, PYRACLOSTROBIN)  
Transport hazard class(es): 9, EHSM  
Packing group: III  
Environmental hazards: yes  
Special precautions for user: Tunnel code: E

#### RID

UN number: UN3077  
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(contains BOSCALID, PYRACLOSTROBIN)  
Transport hazard class(es): 9, EHSM  
Packing group: III  
Environmental hazards: yes  
Special precautions for user: None known

### Inland waterway transport

#### ADN

UN number: UN3077  
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(contains BOSCALID, PYRACLOSTROBIN)  
Transport hazard class(es): 9, EHSM  
Packing group: III  
Environmental hazards: yes  
Special precautions for user: None known  
Transport in inland waterway vessel: Not evaluated

### Sea transport

#### IMDG

UN number: UN 3077  
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(contains BOSCALID, PYRACLOSTROBIN)  
Transport hazard class(es): 9, EHSM  
Packing group: III  
Environmental hazards: yes  
Marine pollutant: YES  
Special precautions for user: None known

### Air transport

#### IATA/ICAO

UN number: UN 3077  
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(contains BOSCALID, PYRACLOSTROBIN)  
Transport hazard class(es): 9, EHSM  
Packing group: III  
Environmental hazards: yes  
Special precautions for user: None known





#### **14.1. UN number**

See corresponding entries for "UN number" for the respective regulations in the tables above.

#### **14.2. UN proper shipping name**

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

#### **14.3. Transport hazard class(es)**

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

#### **14.4. Packing group**

See corresponding entries for "Packing group" for the respective regulations in the tables above.

#### **14.5. Environmental hazards**

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

#### **14.6. Special precautions for user**

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

#### **14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Regulation:	Not evaluated
Shipment approved:	Not evaluated
Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

#### **Further information**

This product is subject to the most recent edition of "The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations" and their amendments (United Kingdom).

### **SECTION 15: Regulatory Information**

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

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

The data should be considered when making any assessment under the Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, for example, 'COSHH Essentials' (United Kingdom).

This product is classified under the Chemicals (Hazard Information and Packaging) Regulations, (CHIP) (United Kingdom).

This product may be subject to the Control of Major Accident Hazards Regulations (COMAH), and amendments if specific threshold tonnages are exceeded (United Kingdom).

#### **15.2. Chemical Safety Assessment**

Advice on product handling can be found in sections 7 and 8 of this safety data sheet.

### **SECTION 16: Other Information**

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

Full text of the classifications, including the indication of danger, the hazard symbols, the R phrases, and the hazard statements, if mentioned in section 2 or 3:





N	Dangerous for the environment.
T	Toxic.
Xn	Harmful.
Xi	Irritant.
51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
23	Toxic by inhalation.
37/38	Irritating to respiratory system and skin.
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
20/22	Harmful by inhalation and if swallowed.
38	Irritating to skin.
41	Risk of serious damage to eyes.
52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Aquatic Acute	Hazardous to the aquatic environment - acute
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Acute Tox.	Acute toxicity
Skin Corr./Irrit.	Skin corrosion/irritation
STOT SE	Specific target organ toxicity — single exposure
Eye Dam./Irrit.	Serious eye damage/eye irritation
H411	Toxic to aquatic life with long lasting effects.
H315	Causes skin irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H302	Harmful if swallowed.
H412	Harmful to aquatic life with long lasting effects.

If you have any queries relating to this MSDS, it's contents or any other product safety related questions, please write to the following e-mail address: [product-safety-north@basf.com](mailto:product-safety-north@basf.com)

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

(Version: 0.0)





# Signum®



MAPP 11450

A water dispersible granule containing 26.7% w/w boscalid and 6.7% w/w pyraclostrobin. Signum is a fungicide with protectant and systemic activity for use against certain diseases in broccoli, Brussels sprout, cabbage, calabrese, cauliflower, strawberry (outdoor and protected), carrot, lettuce (outdoor and protected), field beans, combining peas, vining peas and blackcurrants.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

**SAFETY PRECAUTIONS**

**Operator protection**

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective clothing:

WEAR SUITABLE PROTECTIVE GLOVES when handling the product or handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when applying by hand held equipment.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH HANDS before meals and after work.

IF SWALLOWED, seek medical advice immediately and show this container or label.

**Environmental protection**

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.

To protect aquatic organisms respect an unsprayed buffer zone to surface water bodies in line with LERAP requirements.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5m of the top of the bank of a static or flowing waterbody, unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1m of the top of a ditch which is dry at the time of application. Aim spray away from water.

DO NOT ALLOW DIRECT SPRAY from hand-held sprayers to fall within 1m of the top of the bank of a static or flowing waterbody. Aim spray away from water.

DO NOT ALLOW DIRECT SPRAY from broadcast air-assisted sprayers to fall within 20m of the top of the bank of a static or flowing waterbody unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 5m of the top of a ditch which is dry at the time of application.

Aim spray away from water. This product qualifies for inclusion within the Local Environmental Risk Assessment

for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer or broadcast air-assisted sprayer, either a LERAP must be carried out in accordance with GDO's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for inspection for three years.

DO NOT APPLY MORE THAN 6 kg/ha Signum to the same area of land per annum.

**Storage and disposal**

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSUFFES.

KEEP OUT OF REACH OF CHILDREN.

STORE IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.

Store in a suitable pesticide store. Keep dry and protect from frost.



The Voluntary Initiative

## 2.5 kg e

This label is compliant with the CPA Voluntary Initiative Guidance

**Supplied by:**

**BASF plc**  
Crop Protection  
PO Box 4, Earl Road  
Cheadle Hulme, CHEADLE  
Cheshire SK8 6QG  
Tel: 0161 485 6222

**Emergency Information:**  
(24 hours freephone):  
0049 180 2273112

**Technical Enquiries:**  
0845 602 2553 (office hours)



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