



F U N G I C I D E

SHIRLAN

PRODUCT USE

SUMMARY OF INFORMATION

FORMULATION AND ACTIVE INGREDIENT: Suspension concentrate containing 500 g/l (38.4% w/w) fluazinam.

MAPP NUMBER: 10573.

PACK SIZE: 5 litres.

TARGET: Control of foliar blight (*Phytophthora infestans*) and protection against tuber blight in potatoes.

WATER VOLUME AND BCPC SPRAY QUALITY: 200–500 litres per hectare as a MEDIUM spray quality.

PRACTICAL NOTES:

CROPS	MAXIMUM INDIVIDUAL DOSE	MAXIMUM NUMBER OF APPLICATIONS	HARVEST INTERVAL
Potato	300 ml product/ha	10 per crop	0 days

RAINFASTNESS: 1 hour.

BUFFER ZONE RESTRICTIONS: LERAP Category B.

FOR USE ONLY AS: AN AGRICULTURAL FUNGICIDE

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COMPATIBILITY

The following tank mixes have been tested for physical compatibility with SHIRLAN at recommended rates of use and will mix in the sprayer tank. No tests have been undertaken on crop safety or product performance. Use is at the user's own risk. Syngenta Crop Protection will support 2 and 3-way tank mixes of SHIRLAN with any of the fungicides, herbicides or insecticides listed. For further information on compatibilities contact Syngenta Crop Protection on 0800 169 6058.

FUNGICIDES

BRAVO 500	THIOVIT JET	Sipcam C50
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HERBICIDES/DESICCANTS

REGLONE Sencorex	Spotlight Titus
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INSECTICIDES

APHOX Cyberkill 10 Decis Dimethoate	DOVETAIL HALLMARK with ZEON TECHNOLOGY PLENUM	Toppel
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TRACE ELEMENTS

Syngenta Crop Protection will support the tank mixing of any of the named trace elements with an existing 3-way tank mix including SHIRLAN. Syngenta Crop Protection advise that the trace element part of the tank mix is added to the sprayer tank last with constant agitation and the mixture is sprayed without delay.

Bortrac	Magnesium sulphate	Photel
Caliphos	MagPhos	Seniphos
Croplift	Manganese sulphate	Stopit
Hydromag	Mantrac	Sulphur F3000
Liquid Manganese	Mantrac DF	Zintrac
Magflo 300	Phosamco	

NOTES

Before using any tank mixture, consult and comply with the recommendations of the partner products. Each product should be added separately to the bulk of the water in the spray tank and thoroughly mixed before adding the next chemical. Always use constant agitation of the sprayer tank during mixing, transportation and application. Spray immediately.

DIRECTIONS FOR USE

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

RESTRICTIONS

Additional advice for operators

- SHIRLAN may cause transient skin reaction in a small number of sensitive individuals.
- Do not come in contact with spray drift. Ensure spraying is carried out under good conditions and that the sprayer is adjusted to minimise drift.
- Do not allow contact of contaminated clothing with unprotected skin.
- Do not allow contact between contaminated sprayer parts and unprotected skin. Ensure sprayer is washed down daily.
- Wash all protective clothing (coveralls) regularly, preferably daily, when working with SHIRLAN.
- When entering crops do not allow contact of unprotected skin with treated foliage.
- People who have been sensitised by SHIRLAN should not use or have further contact with the product.

DISEASES CONTROLLED

SHIRLAN is an agricultural fungicide for the control of foliar blight (*Phytophthora infestans*) and protection against tuber blight in potatoes.

BACKGROUND TO POTATO BLIGHT CONTROL

Late blight (*Phytophthora infestans*) is potentially a devastating disease of potatoes. In commercial production, a season long disease prevention policy is essential. First of all ensure that other control methods are being satisfactorily applied:

1. Prevent re-growth on potato dumps.
2. Destroy all groundkeepers.
3. Plant disease free seed.
4. Use generous soil ridges to protect tubers.

Integrate this approach with a fungicide programme:

Early Crops

In first and second early potato crops, particularly those grown in the same locality as main crop potatoes, an adequate and full blight protection programme should be applied right up to harvesting or haulm desiccation. This will protect the early crop while helping to reduce disease risk to later crops.

Maincrops

Disease prevention programmes require regular and season long fungicide use to limit foliar blight development. However, as an effective fungicide programme will preserve leaf area there may be more risk of infecting tubers at harvest, particularly during “heavy” blight years. Completion of the control programme should therefore include a complete haulm desiccant. Lifting of the crop should not take place for at least 10 days after COMPLETE KILL of the haulm. Crops intended for storage should not be lifted while there is any green tissue AT ALL on the leaves or stem bases.

F U N G I C I D E**Blight Risk Assessment**

The risk of disease is affected by weather conditions (during the crop life) and crop location:

Weather Conditions – Spread of disease occurs under warm, humid conditions. Preferably use a reliable decision support system to determine what frequency of fungicide treatment is appropriate and fungicide type required.

Note: Blight forecasting has often been based on the occurrence of “Smith periods”. A “Smith period” is a 48 hour period in which the minimum temperature is 10°C or more and the relative humidity exceeds 90% for at least 11 hours during the first 24 hours and for at least 11 hours again during the final 24 hours. However, any period of warm, humid weather increases blight risk.

Crop Location – Locations with the highest probability of blight problems are:

- Areas of the country where extensive main crop or early production takes place e.g. East Anglia, the South West or the West.
- Areas where climatic conditions that encourage disease development occur on a frequent basis. e.g. the South West, the West and the Fens.

CROP SPECIFIC INFORMATION**Timing****1. Initial Application**

SHIRLAN is a protectant fungicide and therefore the spray programme must start BEFORE blight enters the crop.

Irrespective of crop growth stage, commence spraying at the first blight warning or when local weather conditions are favourable for the disease, whichever is the sooner. Otherwise, in the absence of a weather conducive to disease development, the first application should be made just before foliage of adjacent plants IN THE ROWS begins to meet.

2. Repeat Applications

Intervals between applications of SHIRLAN MUST be reduced as blight risk increases, so that protection of the crop can be maintained, as follows:

“Low risk” situations – applications should be made as a precautionary measure, before conditions conducive to blight development have occurred – APPLY AT 14 DAY INTERVALS

“High risk” situations – following two warm, humid days or in irrigated crops – APPLY AT 7–10 DAY INTERVALS.

“Severe risk” situations – during continued warm, humid weather and when blight is in nearby crops, potato dumps or volunteer plants – APPLY AT 5–7 DAY INTERVALS AS APPROPRIATE, ACCORDING TO BLIGHT WARNINGS AND DISEASE PREDICTION SYSTEMS

NB Potato blight fungicides may not give complete protection when the disease risk is severe. However, disease development will be delayed dramatically with a well timed spray programme.

Up to ten applications of SHIRLAN may be made to a crop.

3. For protection against Tuber Blight

To reduce the risk of problems with tuber blight at harvest SHIRLAN should be used regularly at the recommended intervals from full canopy development to complete haulm desiccation.

Rates of Use

Apply 300 ml/ha of SHIRLAN at each treatment.

Crops grown for processing

Consult processor before use.

MIXING AND SPRAYING

Apply SHIRLAN in 200 to 500 litres of water per hectare. Use adequate water to ensure complete coverage of the foliage and stems, increasing the volume as haulm growth progresses, particularly in dense crops and under high or severe blight risk conditions.

Application Details

1. Application Equipment: Apply SHIRLAN through tractor drawn or mounted, conventional hydraulic crop spraying equipment.
2. Sprayer Preparation: Ensure that the sprayer is clean and calibrated correctly, to give even application. Apply at the recommended water volumes using a MEDIUM quality spray (as defined by British Crop Protection Council guidelines).
3. Spray Pressure: at least 2 bar.
4. Mixing: Before mixing SHIRLAN, first part fill the spray tank with clean water and commence agitation. Then, shake the SHIRLAN container and add the required amount of product to the sprayer using a filling device (e.g. induction bowl, probe etc), or otherwise by direct addition to the spray tank.

Wash out empty container thoroughly and add washings to the sprayer. Preferably use an integrated pressure rinsing device, otherwise manually rinse the container three times. **DO NOT RE-USE CONTAINER FOR ANY PURPOSE.**

Agitate spray tank contents thoroughly whilst filling and throughout the spraying operation.

Do not leave the spray liquid in the sprayer for long periods (such as during meal-breaks or overnight).

DISEASE RESISTANCE

Disease control may be reduced if strains of pathogen less sensitive to SHIRLAN develop.

THIS PRODUCT IS TO BE USED ONLY IN ACCORDANCE WITH THE RECOMMENDATIONS AND INSTRUCTIONS GIVEN ON THE LABEL PROVIDED WITH THIS PACK. USE IN ANY OTHER CIRCUMSTANCES IS ENTIRELY AT THE USER'S RISK.

SAFETY PRECAUTIONS

(a) Operator protection

- * Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:
 - * WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.
 - * WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces.
 - * However engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.
- TAKE OFF IMMEDIATELY all contaminated clothing.
- WASH CONCENTRATE from skin and eyes immediately.

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WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.

WASH HANDS AND EXPOSED SKIN before meals and after work.

IF YOU FEEL UNWELL seek medical advice (show label where possible).

(b) Environmental Protection

DO NOT CONTAMINATE SURFACE WATERS OR DITCHES WITH CHEMICAL OR USED CONTAINER.

* DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 metres of the top of the bank of a static or flowing water-body, unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1 metre of the top of a ditch which is dry at the time of application. DO NOT ALLOW DIRECT SPRAY from hand-held sprayers to fall within 1 metre of the top of the bank of a static or flowing water-body. 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, either a LERAP must be carried out in accordance with PSD published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for 3 years.

(c) Storage and disposal

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

DO NOT RE-USE CONTAINER FOR ANY PURPOSE.

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.

SHIRLAN



IRRITANT



**DANGEROUS
FOR THE
ENVIRONMENT**

Suspension concentrate containing 500 g/l (38.4% w/w) fluazinam

IRRITATING TO EYES.

MAY CAUSE SENSITISATION BY SKIN CONTACT.

VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

Keep out of reach of children.

Keep away from food, drink and animal feeding stuffs.

When using do not eat, drink or smoke.

Avoid contact with skin and eyes.

This material and its container must be disposed of in a safe way.

Wear suitable protective clothing and gloves.

If swallowed, seek medical advice immediately and show this container or label.

Use appropriate containment to avoid environmental contamination.

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

THE (COSHH) CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS MAY APPLY TO THE USE OF THIS PRODUCT AT WORK

COMPLIANCE WITH THE FOLLOWING CONDITIONS OF USE AND ALL PRECAUTIONS MARKED * IS A LEGAL REQUIREMENT

FOR USE ONLY AS AN AGRICULTURAL FUNGICIDE

For use on: Potatoes

Maximum Dose: 300 ml product/ha

Maximum No. of treatments: 10 per crop

Other specific restrictions:

A minimum of five days must be observed between applications.

READ ALL OTHER SAFETY PRECAUTIONS AND DIRECTIONS BEFORE USE.

F U N G I C I D E

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

IDENTIFICATION OF THE SUBSTANCE OR PREPARATION

Tradename **SHIRLAN**
Design Code **YF 8053 / A7087E**
AGI Code **1001856**

COMPANY IDENTIFICATION

Company Syngenta Crop Protection UK Ltd
Whittlesford, CAMBRIDGE, CB2 4QT
Phone (01223) 833621
Fax (01223) 493700
Website www.syngenta-crop.co.uk

Emergency Phone 0044 (0)1484 538444 (24h)

2. COMPOSITION/INFORMATION ON INGREDIENTS

PRODUCT DESCRIPTION

A broad spectrum pyridine fungicide. An aqueous suspension concentrate with suspending agents, antifreeze, antifoam and biocide.

HAZARDOUS COMPONENTS

CAS-NO.	HAZARDOUS INGREDIENTS	CONCENTRATION (%W/V)	HAZARD SYMBOLS	RISK PHRASES
79622-59-6	Fluazinam	50	T, N	23-36-43-50/53

3. HAZARDS IDENTIFICATION

Irritating to eyes. May cause sensitisation by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

Eye contact: Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.

Skin contact: Take off immediately all contaminated clothing. Wash skin immediately with water, followed by soap and water. Such action is essential to minimise contact with skin. Contaminated clothing should be laundered before re-issue.

Inhalation: Remove patient from exposure, keep warm and at rest. Obtain medical attention as a precaution.

Ingestion: If swallowed seek medical advice immediately and show the container, label or this Data Sheet, if possible. Do not induce vomiting.

MEDICAL ADVICE

If the amount of chemical is judged to be less than a lethal dose, observe the patient and treat symptomatically. If gastric lavage is considered necessary, prevent aspiration of gastric material. Consider administration of activated charcoal and a laxative.

5. FIRE FIGHTING MEASURES

Keep fire exposed containers cool by spraying with water.

Extinguishing media: For small fires, use foam, carbon dioxide or dry powder extinguishant. For large fires, use foam or water-fog; avoid use of water jet. Contain run-off water with, for example, temporary earth barriers.

Protective Equipment: A self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions. See also section 10.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Ensure suitable personal protection during removal of spillages. This means wearing eye protection, chemically resistant gloves, boots and coveralls.

Clean up methods: Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Wash the spillage area with water. Washings must be prevented from entering surface water drains.

Spillages or uncontrolled discharges into water courses must be alerted to the appropriate regulatory body.

7. HANDLING AND STORAGE

HANDLING

Read the label before use.

Avoid contact with skin and eyes. When using do not eat, drink or smoke. Wash face and hands before eating, drinking or smoking.

STORAGE

Keep in original containers, tightly closed, out of reach of children. Keep away from food, drink and animal feeding stuffs. Protect from frost.

Storage Life: Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protection: When using this product refer to the label for details. Occupational exposure limits.

Hazardous ingredient: Fluazinam SYNGENTA Standard 8 hr TWA 0.7 mg/m³

Not applicable to field use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Mobile suspension.
Colour:	Yellow to light brown.
Odour:	Not available.
Melting point:	Not available.
Boiling point:	Approx 100 °C (aqueous suspension).
Flash point:	Does not flash.
Autoignition temperature:	Not available.

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Explosive properties:	Non-explosive.
Vapour pressure:	Not available.
Density:	1.3 g/ml.
Solubility:	Miscible in/with water.
pH-value (1%):	7 to 8.
Partition coeff.:	Not available.
Viscosity:	15 to 25 mPas.
Oxidizing properties:	Non-oxidising.
Relative vapour density:	>1.

10. STABILITY AND REACTIVITY

Hazardous decomposition products: Combustion or thermal decomposition will evolve toxic, corrosive and irritant vapours (hydrogen chloride, hydrofluoric acid, nitrous vapours, carbon monoxide, carbon dioxide).

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY (LETHAL DOSES)

This health hazard assessment is based on information available on similar formulations.

LD₅₀ Oral rat: > 2079 mg/kg Low oral toxicity.

LD₅₀ Dermal rat: (calculated) > 4000 mg/kg

LC₅₀ Inhalation rat: >0.55 mg/1/4 h

Inhalation: Unlikely to cause harmful effects when handled and used as directed on the label.

ACUTE TOXICITY (IRRITATION, SENSITISATION, ETC.)

Eye Irritation: Irritant.

Skin Irritation: Non-irritant to rabbit skin.

Skin Sensitisation: May cause sensitisation by skin contact.

CHRONIC TOXICOLOGICAL EFFECTS / LONG TERM EXPOSURE

On continuous/repeated exposure/contact: skin rash/inflammation.

Long Term Exposure: No long-term risks to man are associated with this material when handled and used as directed on the label.

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Fluazinam

Toxicity to Fish LC₅₀: 0.11 mg/l (*Salmo gairdneri* / *oncorhynchus mykiss*; 96 hours)

Toxicity to Aquatic Invertebrates EC₅₀: 0.19 mg/l (*Daphnia magna* (water flea); 48 hours)

Toxicity to Algae EC₅₀: 0.54 mg/l (*Selenastrum capricornutum*; 96 hours)

BIOACCUMULATIVE POTENTIAL

Fluazinam log P_{ow}: 3.56

BCF: 642 (*Iepomis macrochirus*)

13. DISPOSAL CONSIDERATIONS

Do not contaminate ponds, waterways or ditches with chemical or used containers. Surplus material must be disposed of as detailed in the 'Guidelines for the avoidance, limitation and disposal of pesticide waste on the farm' GCPF, 1987. Empty containers should be washed and discarded. Empty containers should not be used for other purposes. Disposal should be in accordance with local, state or national legislation.

14. TRANSPORT INFORMATION

RAIL / ROAD (RID / ADR)	Class	UN Number	Packaging Group
	9	3082	III
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUAZINAM MIXTURE)		
SEA (IMDG-CODE)	Class	UN Number	Packaging Group
	9	3082	III
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains fluazinam 50%)		
Marine pollutant	yes		

15. REGULATORY INFORMATION

Classifications /	N	DANGEROUS FOR THE ENVIRONMENT
Hazard symbols	Xi	IRRITANT.
Risks phrases (R)	36	Irritating to eyes.
	43	May cause sensitisation by skin contact.
	50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety phrases (S)	2	Keep out of the reach of children.
	13	Keep away from food, drink and animal feeding stuffs.
	20/21	When using do not eat, drink or smoke.
	35	This material and its container must be disposed of in a safe way.
	36/37	Wear suitable protective clothing and gloves.
	46	If swallowed, seek medical advice immediately and show this container or label.
	57	Use appropriate containment to avoid environmental contamination.
Special label		To avoid risks to man and the environment, comply with the instructions for use.

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16. OTHER INFORMATION

Always read the label. Use pesticides safely.

Product registration number: MAPP 10573.

Based upon SDS version 2, release date 14/10/99 with DPD update and datasheet 06-2003.

Significant revisions to sections 2, 3, 10, 11, 12 & 15.

The information contained herein is based on the present state of our knowledge as is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.