



## MATERIAL SAFETY DATA SHEET SHADOW

### IDENTIFICATION OF THE SUPPLIER:

**AGRO CHEMICALS INDUSTRIES LTD**  
**P.O.Box 183020 Amman 11118 Jordan**  
**Tel. : +962 6 5548224/5**  
**Fax. : +962 6 5548220**  
**E-mail: info@aci.com.jo**

### PRODUCT IDENTIFICATION :

**Common Name:** Imidacloprid +  $\beta$ -cyfluthrin

**Trade Name:** Shadow

**Chemical Name:**

Imidacloprid 1-(6-chloro-3-pyridylmethyl)-N-nitroimidazolidin-2-ylideneamine

$\beta$ -cyfluthrin cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate

**Chemical Formula:**

Imidacloprid  $C_9H_{10}ClN_5O_2$

$\beta$ -cyfluthrin  $C_{22}H_{18}Cl_2FNO_3$

**Molecular Weight:**

Imidacloprid : 255.7

$\beta$ -cyfluthrin: 434.3

### PRODUCT COMPOSITION:

<i>Active Ingredient:</i>	CAS #	W/V
Imidacloprid	[138261-41-3]	24 %
$\beta$ -cyfluthrin	[68359-37-5]	12 %





***Inert ingredient:***

Up to 100%

**HAZARDS IDENTIFICATION:**

Classification in accordance with regulation HCS 29CFR §1910.1200  
Acute toxicity (Oral, Inhalation): Category 4

Labelling in accordance with regulation HCS 29CFR §1910.1200



**Signal word:** Warning

**Hazard statements** Harmful if swallowed or if inhaled

**Precautionary statements**

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid breathing mist and spray.

Use only outdoors or in a well-ventilated area.

IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

Rinse mouth.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

Dispose of contents/container in accordance with local regulation.

**Hazards Not Otherwise Classified (HNOC)**

No physical hazards not otherwise classified.

No health hazards not otherwise classified.





**FIRST AID MEASURES:**

<b>General</b>	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment .
<b>Eye contact</b>	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.
<b>Inhalation</b>	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

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

Symptoms to date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

**Treatment** Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

**FIRE FLIGHTING MESURES:**

**Extinguishing media**

**Suitable** Water spray, Foam, Carbon dioxide (CO<sub>2</sub>), Dry chemical

**Unsuitable** None known.

**Special hazards arising from the substance or mixture** Dangerous gases are evolved in the event of a fire.





### Advice for firefighters

**Special protective equipment for firefighters** Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

**Further information** Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

**Flash point** > 93.3 °C

**Auto-ignition temperature** 360 °C / 680 °F

**Lower explosion limit** No data available

**Upper explosion limit** No data available

**Explosivity** Not explosive 92/69/EEC, A.14 / OECD 113

## ACCIDENTAL RELEASE MEASURES:

### Personal precautions, protective equipment and emergency procedures

**Precautions** Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces

### Methods and materials for containment and cleaning up

**Methods for cleaning up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

**Additional advice** Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.



## EXPOSURE CONTROLS/ PERSONAL PROTECTION:

### Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Imidacloprid	138261-41-3	50ug/m3 (ST ESL)	07 2011	TX ESL
Imidacloprid	138261-41-3	5ug/m3 (AN ESL)	07 2011	TX ESL
Imidacloprid	138261-41-3	0.7 mg/m3 (TWA)		OES BCS*
Beta-Cyfluthrin	68359-37-5	5ug/m3 (AN ESL)	03 2014	TX ESL
Beta-Cyfluthrin	68359-37-5	50ug/m3 (ST ESL)	03 2014	TX ESL
Beta-Cyfluthrin	68359-37-5	0.01 mg/m3 (TWA)		OES BCS*
Glycerine (Respirable fraction.)	56-81-5	5 mg/m3 (PEL)	02 2006	OSHA Z1
Glycerine (Total dust.)	56-81-5	15 mg/m3 (PEL)	02 2006	OSHA Z1

Glycerine (Respirable fraction and dust or fume.)	56-81-5	5 mg/m3 (TWA)	06 2008	TN OEL
Glycerine (Total dust and mist.)	56-81-5	10 mg/m3 (TWA)	06 2008	TN OEL
Glycerine	56-81-5	5ug/m3 (AN ESL)	03 2014	TX ESL
Glycerine	56-81-5	1000ug/m3 (ST ESL)	03 2014	TX ESL
Glycerine	56-81-5	50ug/m3 (ST ESL)	03 2014	TX ESL
Glycerine	56-81-5	100ug/m3 (AN ESL)	03 2014	TX ESL

\*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

### Exposure controls

#### Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

#### Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

#### Hand protection

Chemical resistant nitrile rubber gloves

#### Eye protection

Safety glasses with side-shields

#### Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

#### General protective measures





Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

## **HANDLING AND STORAGE :**

### **Precautions for safe handling**

#### **Advice on safe handling**

Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

#### **Hygiene measures**

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

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

#### **Requirements for storage areas and containers**

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

## **STABILITY AND REACTIVITY:**

### **Reactivity**

#### **Thermal decomposition**

Not applicable

#### **Chemical stability**

Stable under normal conditions.

#### **Possibility of hazardous reactions**

No dangerous reaction known under conditions of normal use.

#### **Conditions to avoid**

Extremes of temperature and direct sunlight.

#### **Incompatible materials**

No data available

#### **Hazardous decomposition products**

No decomposition products expected under normal conditions of use.





## PHYSICAL AND CHEMICAL PROPERTIES:

**Appearance** white to beige

**Physical State** suspension

**Odor** characteristic

**Odour Threshold** No data available

**PH** ca. 6.9 at 10 %

**Vapor Pressure** No data available

**Vapor Density (Air = 1)** No data available

**Density** 1.16 g/cm<sup>3</sup> at 20 °C

**Evaporation rate** No data available

**Boiling Point** No data available

**Melting / Freezing Point** No data available

**Water solubility** dispersible

**Minimum Ignition Energy** Not applicable

**Decomposition temperature** Not applicable

**Partition coefficient: n-octanol/water** No data available

**Viscosity** 500 - 1,100 mPa.s

**Flash point** > 93.3 °C

**Auto-ignition temperature** 360 °C / 680 °F

**Lower explosion limit** No data available

**Upper explosion limit** No data available

**Explosivity** Not explosive 92/69/EEC, A.14 / OECD 113

## TOXICOLOGICAL INFORMATION:

### Exposure routes

Skin Absorption, Eye contact, Ingestion

### Immediate Effects

**Eye** Moderate eye irritation.

**Skin** Harmful if absorbed through skin. May cause slight irritation.

**Ingestion** Harmful if swallowed.

### Information on toxicological effects

**Acute oral toxicity** LD50 (female Rat) > 1,044 mg/kg

**Acute inhalation toxicity** LC50 (Rat) > 2.03 mg/l

Exposure time: 4 h

Determined in the form of liquid aerosol.

Highest concentration tested

No deaths

**Acute dermal toxicity** LD50 (Rat) > 2,000 mg/kg

**Skin irritation** slight irritation (Rabbit)



**Eye irritation** Mild eye irritation. (Rabbit)

**Sensitisation** Non-sensitizing. (Guinea pig)

**Assessment STOT Specific target organ toxicity – repeated exposure**

Imidacloprid did not cause specific target organ toxicity in experimental animal studies.

The toxic effects of Beta-Cyfluthrin are related to transient hyperactivity typical for pyrethroid neurotoxicity.

**Assessment mutagenicity**

Imidacloprid was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Beta-Cyfluthrin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

**Assessment carcinogenicity**

Imidacloprid was not carcinogenic in lifetime feeding studies in rats and mice.

Beta-Cyfluthrin was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH None.

NTP None.

IARC None.

OSHA None.

**Assessment toxicity to reproduction**

Imidacloprid caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Imidacloprid is related to parental toxicity.

Beta-Cyfluthrin caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Beta-Cyfluthrin is related to parental toxicity.

**Assessment developmental toxicity**

Imidacloprid caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Imidacloprid are related to maternal toxicity.

**Further information**

Only acute toxicity studies have been performed on the formulated product.

The non-acute information pertains to the active ingredient(s).







## ECOLOGICAL INFORMATION:

### Toxicity to fish

LC50 (*Oncorhynchus mykiss* (rainbow trout)) 211 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient imidacloprid.

LC50 (*Oncorhynchus mykiss* (rainbow trout)) 0.000068 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient beta-cyfluthrin.

### Toxicity to aquatic invertebrates

EC50 (*Daphnia magna* (Water flea)) 85 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient imidacloprid.

LC50 (*Chironomus riparius* (non-biting midge)) 0.0552 mg/l

Exposure time: 24 h

The value mentioned relates to the active ingredient imidacloprid.

EC50 (*Daphnia magna* (Water flea)) 0.00029 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient beta-cyfluthrin

### Toxicity to aquatic plants

EC50 (*Desmodesmus subspicatus* (green algae)) > 10 mg/l

Growth rate; Exposure time: 72 h

The value mentioned relates to the active ingredient imidacloprid.

IC50 (*Desmodesmus subspicatus* (green algae)) > 0.01 mg/l

Growth rate; Exposure time: 72 h

The value mentioned relates to the active ingredient beta-cyfluthrin.

No acute toxicity was observed at its limit of water solubility.

### Biodegradability

Imidacloprid: Not rapidly biodegradable

Beta-Cyfluthrin: Not rapidly biodegradable

### Koc

Imidacloprid: Koc: 225

Beta-Cyfluthrin: Koc: 508 - 3179

### Bioaccumulation

Imidacloprid: Does not bioaccumulate.

Beta-Cyfluthrin: Bioconcentration factor (BCF) 506 does not bioaccumulate.

### Mobility in soil

Imidacloprid: Moderately mobile in soils

Beta-Cyfluthrin: Immobile in soil





### **Environmental precautions**

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.

Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites.

Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Apply this product as specified on the label.

### **DISPOSAL CONSIDERATION:**

#### **Waste treatment methods**

**Product** Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.

Never place unused product down any indoor or outdoor drain.

Follow advice on product label and/or leaflet.

#### **Contaminated packaging**

Do not re-use empty containers.

Triple rinse containers.

Add washings to sprayer at time of filling.

Puncture container to avoid re-use.

Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.

If burned, stay out of smoke.

Follow advice on product label and/or leaflet.

#### **RCRA Information**

Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

