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

Product identifier
Trade name BAYER ADVANCED 2-IN-1 INSECT CONTROL PLUS FERTILIZER PLANT SPIKES
Product code (UVP) 04455053
SDS Number 102000007185
EPA Registration No. 432-1399-72155

Relevant identified uses of the substance or mixture and uses advised against
Use Insecticide, Fertilizer
Restrictions on use See product label for restrictions.

Information on supplier
Supplier Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States
Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.
Emergency Telephone Number (24hr / 7 days) 1-800-334-7577
Product Information Telephone Number 1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards
No particular hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Concentration % by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidacloprid</td>
<td>138261-41-3</td>
<td>2.5</td>
</tr>
<tr>
<td>Copper(II)-sulphate pentahydrate</td>
<td>7758-99-8</td>
<td>0.5</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation 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.

Skin contact 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.

Eye contact 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.

Ingestion 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.

Most important symptoms and effects, both acute and delayed

Symptoms If large amounts are ingested, the following symptoms may occur:
Nausea, Vomiting, Dizziness, Abdominal pain, Nausea
Symptoms and hazards refer to effects observed after intake of significant amounts of the active ingredient(s).

Indication of any immediate medical attention and special treatment needed

Treatment Treat symptomatically. Monitor: respiratory and cardiac functions. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable High volume water jet
Special hazards arising from the substance or mixture

In the event of fire the following may be released: Hydrogen chloride (HCl), Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Nitrogen oxides (NOx)

Advice for firefighters

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information

Whenever possible, contain fire-fighting water by diking area with sand or earth. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point

not applicable

Autoignition temperature

no data available

Lower explosion limit

not applicable

Upper explosion limit

not applicable

Explosivity

Not explosive

92/69/EEC, A.14 / OECD 113

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions

Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

Methods and materials for containment and cleaning up

Methods for cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice

Do not allow to enter soil, waterways or waste water canal.

Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice.

Advice on protection against fire and explosion

No special precautions required.
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 and wash contaminated gloves, including the inside, before re-use. Remove Personal Protective Equipment (PPE) immediately after handling this product. 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
Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container. Store in a place accessible by authorized persons only. Keep away from direct sunlight.

Advice on common storage
Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
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<tbody>
<tr>
<td>Imidacloprid</td>
<td>138261-41-3</td>
<td>50ug/m3</td>
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<td>TX ESL</td>
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<td>Imidacloprid</td>
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<td>OES BCS*</td>
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<td>02 2012</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Starch (Total)</td>
<td>9005-25-8</td>
<td>10 mg/m3 (TWA)</td>
<td>2010</td>
<td>NIOSH</td>
</tr>
<tr>
<td>Starch (Respirable.)</td>
<td>9005-25-8</td>
<td>5 mg/m3 (REL)</td>
<td>2010</td>
<td>NIOSH</td>
</tr>
<tr>
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<td>OSHA Z1</td>
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<tr>
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<td>OSHA Z1</td>
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<tr>
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<td>OSHA Z1A</td>
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<tr>
<td>Starch (Total dust.)</td>
<td>9005-25-8</td>
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<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Starch (Respirable fraction.)</td>
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<td>5 mg/m3 (TWA)</td>
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<tr>
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<td>TX ESL</td>
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<td>5ug/m3</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
</tbody>
</table>
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.
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance  
beige to light grey

Physical State  
small rod

Odor  
weak characteristic

Odour Threshold  
no data available

pH  
6.4 at 10 % (25 °C)

Vapor Pressure  
no data available

Vapor Density (Air = 1)  
no data available

Density  
Bulk density  
1,590 - 1,630 kg/m³

Evaporation rate  
no data available

Boiling Point  
not applicable

Melting / Freezing Point  
not applicable

Water solubility  
Not dispersible

Minimum Ignition Energy  
no data available

Decomposition temperature  
from 175 °C, Heating rate: 3 K/min

Partition coefficient: n-octanol/water  
not applicable

Viscosity  
not applicable

Flash point  
not applicable

Autoignition temperature  
no data available

Lower explosion limit  
not applicable

Upper explosion limit  
not applicable

Explosivity  
Not explosive

92/69/EEC, A.14 / OECD 113

Other information  
Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity  
Thermal decomposition  
from 175 °C, Heating rate: 3 K/min

Chemical stability  
Stable under recommended storage conditions.
Possibility of hazardous reactions
No hazardous reactions when stored and handled according to prescribed instructions.

Conditions to avoid
Extremes of temperature and direct sunlight.

Incompatible materials
Store only in the original container.

Hazardous decomposition products
No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes
Eye contact, Skin Absorption, Ingestion, Inhalation

Immediate Effects
Eye
Causes eye irritation.

Skin
Harmful if absorbed through skin.

Ingestion
Harmful if swallowed.

Inhalation
May cause irritation of the mucous membranes.

Information on toxicological effects

Acute oral toxicity
LD50 (rat) > 4,820 mg/kg

Acute inhalation toxicity
LC50 (rat) > 5.1 mg/l
Exposure time: 4 h
Determined in the form of dust.

LC50 (rat) > 20 mg/l
Exposure time: 1 h
Determined in the form of dust.
Extrapolated from the 4 hr LC50.

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

Skin irritation
No skin irritation (rabbit)

Eye irritation
Mild eye irritation. (rabbit)

Sensitisation
Non-sensitizing. (guinea pig)

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

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.

Assessment carcinogenicity
Imidacloprid 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.

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
Acute toxicity studies have been bridged from a similar formulation(s). The non-acute information pertains to the active ingredient(s).

SECTION 12: 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)) 0.03 mg/l
  Exposure time: 96 h
  The value mentioned relates to copper(II)-sulphate pentahydrate.

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)) 0.2 mg/l
  Exposure time: 48 h
  The value mentioned relates to copper(II)-sulphate pentahydrate.

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.

Biodegradability
Imidacloprid: not rapidly biodegradable

Koc
Imidacloprid: Koc: 225

Bioaccumulation
Imidacloprid: Does not bioaccumulate.

Mobility in soil
Imidacloprid: Moderately mobile in soils

Additional ecological information
No other effects to be mentioned.

Environmental precautions
Do not allow to get into surface water, drains and ground water.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Dispose in accordance with all local, state/provincial and federal regulations.
Follow container label instructions for disposal of wastes generated during use in compliance with the product label.

Contaminated packaging
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.

SECTION 14: TRANSPORT INFORMATION

49CFR
UN number 3077
Class 9
Packaging group III
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (COPPER (II) SULFATE PENTAHYDRATE)
RQ Reportable Quantity is reached with 2,000 lb of product.

IMDG
UN number 3077
Class 9
Packaging group: III  
Marine pollutant: YES  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (IMIDACLOPRID MIXTURE)

IATA  
UN number: 3077  
Class: 9  
Packaging group: III  
Environn. Hazardous Mark: YES  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (IMIDACLOPRID MIXTURE)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15: REGULATORY INFORMATION

EPA Registration No.: 432-1399-72155  
US Federal Regulations: None.  
TSCA list: None.  
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D): None.  
SARA Title III - Section 302 - Notification and Information: None.  
SARA Title III - Section 313 - Toxic Chemical Release Reporting: Copper(II)-sulphate pentahydrate 7758-99-8  
US States Regulatory Reporting: None.  
CA Prop65: This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients: Copper(II)-sulphate pentahydrate 7758-99-8 CA, CT, IL, MI, NJ, RI

Canadian Regulations: None.

Canadian Domestic Substance List: None.

Environmental CERCLA: Copper(II)-sulphate pentahydrate 7758-99-8
Clean Water Section 307 Priority Pollutants
Copper(II)-sulphate pentahydrate 7758-99-8

Safe Drinking Water Act Maximum Contaminant Levels
Copper(II)-sulphate pentahydrate 7758-99-8

EPA/FIFRA Information:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

Hazard statements: Harmful if swallowed or absorbed through skin.
Causes eye irritation.
Avoid contact with skin, eyes and clothing.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms
49CFR Code of Federal Regulations, Title 49
ACGIH US. ACGIH Threshold Limit Values
CAS-Nr. Chemical Abstracts Service number
EINECS European inventory of existing commercial substances
ELINCS European list of notified chemical substances
IARC US. IARC Monographs on Occupational Exposures to Chemical Agents
IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
N.O.S. Not otherwise specified
NTP US. National Toxicology Program (NTP) Report on Carcinogens
OECD Organization for Economic Co-operation and Development
TDG Transportation of Dangerous Goods
TWA Time weighted average
UN United Nations
WHO World health organisation

NFPA 704 (National Fire Protection Association):
Health - 1 Flammability - 1 Instability - 1 Others - none

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)
Revision Date: 08/10/2015

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