1. PRODUCT IDENTIFICATION

Product identifier on label: HERITAGE® ACTION

Product No.: A20964A

Use: Fungicide

Manufacturer: Syngenta Crop Protection, LLC
Post Office Box 18300
Greensboro NC 27419

Manufacturer Phone: 1-800-334-9481

Emergency Phone: 1-800-888-8372

2. HAZARDS IDENTIFICATION

Classifications:
Specific Target Organ Toxicity: Repeated Category 2
Specific Target Organ Toxicity: Respiratory Irritation Category 3
Eye Damage/Irritation: Category 2B
Carcinogenicity: Category 1A

Signal Word (OSHA): Danger

Hazard Statements:
Causes eye irritation
May cause respiratory irritation
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Hazard Symbols:

Precautionary Statements:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash hands and face thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, eye protection.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice.
If exposed or concerned: Get medical advice/attention.
Call a poison center, doctor or Syngenta if you feel unwell.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Common Name</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline Silica, Quartz and Cristobalite</td>
<td>Crystalline Silica, Quartz and Cristobalite</td>
<td>14808-60-7</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Kaolin Clay</td>
<td>Kaolin Clay</td>
<td>1332-58-7</td>
<td>Trade Secret</td>
</tr>
<tr>
<td>Other ingredients</td>
<td>Other ingredients</td>
<td>Trade Secret</td>
<td>&gt;47.82%</td>
</tr>
<tr>
<td>Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate</td>
<td>Azoxystrobin</td>
<td>131860-33-8</td>
<td>50%</td>
</tr>
<tr>
<td>1,2,3-Benzothiadiazole-7-carbothioic acid S-methyl ester</td>
<td>Acibenzolar-S-Methyl</td>
<td>135158-54-2</td>
<td>1.18%</td>
</tr>
</tbody>
</table>

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

Have the product container, label or Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Most important symptoms/effects:
- Eye irritation
- Respiratory irritation

Indication of immediate medical attention and special treatment needed:
- There is no specific antidote if this product is ingested.
- Treat symptomatically.
- Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.
5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:
Use dry chemical, foam or CO2 extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:
Fire will spread by burning with flame.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

See also Sec. 7.

Special protective equipment and precautions for firefighters:
Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:
Follow exposure controls/personal protection outlined in Section 8.

Methods and materials for containment and cleaning up:
Avoid dust formation.

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Sweep up material and place in a compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Precautions for safe handling:
This material can become readily charged in most operations.

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

In general personnel handling this material and all conducting equipment should be electrically earthed or grounded. Bulk bags (FIBC) used to contain this material should be Type B, Type C or Type D. Type C bags must be electrically grounded or earthed before powder is charged to or discharged from the bag. If metal or fiber drums are used to contain this material, make certain the metal parts are bonded to the filling equipment and grounded.

Conditions for safe storage, including any incompatibilities:
Store locked up.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>Other</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline Silica, Quartz and</td>
<td>10 mg/m³/(%SiO₂+2)</td>
<td>0.025 mg/m³</td>
<td>0.05 mg/m³</td>
<td>NIOSH</td>
</tr>
</tbody>
</table>
Ingestion:
Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact:
Where eye contact is likely, use dust-proof chemical goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Skin Contact:
Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

Inhalation:
A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use NIOSH certified respirator with any N, R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Off-white solid
Odor: Musty
Odor Threshold: Not Available
pH: 7.5 (1% Aqueous Solution)
Melting point/freezing point: Not Available
Initial boiling point and boiling range: Not Available
Flash Point (Test Method): Not Available
Flammable Limits (% in Air): Not Available
Flammability: Not Available
Vapor Pressure: Acibenzolar-S-Methyl 0.00000165mmHg @ 68°F (20°C)
Azoxystrobin 8.25 x 10(-13) mmHg @ 68°F (20°C)
Vapor Density: Not Available
Relative Density: 0.5645 g/ml
Solubility (ies): Acibenzolar-S-Methyl 7.7 mg/l @ 68°F (20°C)
Azoxystrobin 6 mg/l in water @ 68°F (20°C)
HERITAGE® ACTION

Date: 1/13/2015
Replaces: N/A

Partition coefficient: n-octanol/water: Not Available
Autoignition Temperature: Not Available
Decomposition Temperature: Not Available
Viscosity: Not Available
Other: None

10. STABILITY AND REACTIVITY
   Reactivity: Not reactive.
   Chemical stability: Stable under normal use and storage conditions.
   Possibility of hazardous reactions: Will not occur.
   Conditions to Avoid: None known.
   Incompatible materials: None known.
   Hazardous Decomposition Products: Not Available

11. TOXICOLOGICAL INFORMATION
   Health effects information
   Likely routes of exposure: Dermal, Inhalation
   Symptoms of exposure: Eye irritation, Respiratory irritation
   Delayed, immediate and chronic effects of exposure: Possible carcinogenicity, Eye irritation, Respiratory system effects
   Numerical measures of toxicity (acute toxicity/irritation studies (finished product))
   Ingestion: Oral (LD50 Female Rat) : > 5,000 mg/kg body weight
   Dermal: Dermal (LD50 Rat) : > 5,000 mg/kg body weight
   Inhalation: Inhalation (LC50 Rat) : > 2.60 mg/l
   Eye Contact: Mild Irritant
   Skin Contact: Non-Irritating
   Skin Sensitization: Not a Sensitizer (LLNA Assay)

Reproductive/Developmental Effects
   Acibenzolar-S-Methyl: Developmental toxicity and fetal malformations observed at high maternal doses (rats). Additional testing showed that these effects are not relevant to humans.
   Azoxystrobin : Did not show reproductive toxicity effects in animal experiments.

Chronic/Subchronic Toxicity Studies
   Acibenzolar-S-Methyl: Slight hemolytic anemia at highest dose level (rats, mice and dogs). Liver and spleen effects observed in highest dose level (rats and dogs).
   Azoxystrobin : No adverse effect has been observed in chronic toxicity tests.
1. CARCINOGENICITY

Acibenzolar-S-Methyl: Not carcinogenic at dietary levels up to 7500 ppm (rat) and 6000 ppm (mouse).
Azoxystrobin: Did not show carcinogenic effects in animal experiments.

2. TOXICITY OF OTHER COMPONENTS

Chronic inhalation exposure to crystalline silica is known to cause silicosis and pulmonary fibrosis in humans. Experimental animals exposed to crystalline silica developed respiratory tract cancers.

3. TARGET ORGANS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>NTP/IARC/OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline Silica, Quartz and Cristobalite</td>
<td>IARC 1; ACGIH A2</td>
</tr>
<tr>
<td>Kaolin Clay</td>
<td>No</td>
</tr>
<tr>
<td>Other ingredients</td>
<td>No</td>
</tr>
<tr>
<td>Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate</td>
<td>No</td>
</tr>
<tr>
<td>1,2,3-Benzothiadiazole-7-carbothioic acid S-methyl ester</td>
<td>No</td>
</tr>
</tbody>
</table>

4. OTHER TOXICITY INFORMATION

Not Available

5. TOXICITY OF OTHER COMPONENTS

Crystalline Silica, Quartz and Cristobalite
Chronic inhalation exposure to crystalline silica is known to cause silicosis and pulmonary fibrosis in humans. Experimental animals exposed to crystalline silica developed respiratory tract cancers.

Kaolin Clay
May cause eye and respiratory tract irritation. Long-term exposure to high concentrations of this dust may produce x-ray evidence of dust in the lungs. Continued long-term exposure may affect respiratory function in some individuals.

Other ingredients
Not Applicable

6. TARGET ORGANS

<table>
<thead>
<tr>
<th>Active Ingredients</th>
<th>Blood, liver, spleen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acibenzolar-S-Methyl:</td>
<td>Blood, liver, spleen</td>
</tr>
<tr>
<td>Azoxystrobin:</td>
<td>Liver</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inert Ingredients</th>
<th>Respiratory tract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline Silica, Quartz and Cristobalite:</td>
<td>Respiratory tract</td>
</tr>
<tr>
<td>Kaolin Clay:</td>
<td>Eye, respiratory tract, lung</td>
</tr>
</tbody>
</table>

Other ingredients Not Applicable

7. ECOLOGICAL INFORMATION

8. ECO-ACUTE TOXICITY

<table>
<thead>
<tr>
<th>Chemotherapeutic Effect Category</th>
<th>Test Species</th>
<th>Effect Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acibenzolar-S-Methyl:</td>
<td>Fish (Rainbow Trout)</td>
<td>96-hour LC50 470 ppb</td>
</tr>
<tr>
<td></td>
<td>Green Algae</td>
<td>5-day EC50 106 ppb</td>
</tr>
<tr>
<td></td>
<td>Invertebrate (Water Flea)</td>
<td>48-hour EC50 259 ppb</td>
</tr>
<tr>
<td></td>
<td>Bird (Mallard Duck)</td>
<td>14-day LD50 &gt; 250 mg/kg</td>
</tr>
</tbody>
</table>


Environmental Fate
Acibenzolar-S-Methyl:
The information presented here is for the active ingredient, acibenazolar-s-methyl.
Low bioaccumulation potential. Not persistent in soil or water. Low mobility in soil. Sinks in water (after 24 h).
Azoxystrobin :
The information presented here is for the active ingredient, azoxystrobin.

13. DISPOSAL CONSIDERATIONS

Disposal:
Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable
Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification
Ground Transport - NAFTA
Not regulated

Comments
Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Azoxystrobin), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3077
Packing Group: PG III

Air Transport
Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Azoxystrobin)
Hazard Class: Class 9
Identification Number: UN 3077
Packing Group: PG III

15. REGULATORY INFORMATION

Pesticide Registration:
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 as required on the pesticide label:
Caution: Causes moderate eye irritation. Do not get in eyes or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear protective eyewear, long sleeved shirt and long pants, socks and shoes. Remove and wash contaminated clothing before reuse.

EPA Registration Number(s):
100-1550

EPCRA SARA Title III Classification:
Section 311/312 Hazard Classes: Acute Health Hazard
Section 313 Toxic Chemicals: None

CERCLA/SARA 304 Reportable Quantity (RQ):
Not Applicable

RCRA Hazardous Waste Classification (40 CFR 261):
Not Applicable

TSCA Status:
TSCA R & D Exempt

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Hazard Ratings</th>
<th>HMIS Hazard Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>2</td>
</tr>
<tr>
<td>Flammability:</td>
<td>1</td>
</tr>
<tr>
<td>Instability:</td>
<td>0</td>
</tr>
</tbody>
</table>

Syngenta Hazard Category: C,S

For non-emergency questions about this product call:
1-800-334-9481

Original Issued Date: 1/13/2015
Revision Date:        Replaces:
Section(s) Revised:

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.