SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: BAYER ADVANCED ALL-IN-ONE LAWN WEED AND CRABGRASS KILLER CONCENTRATE

MSDS Number: 102000012304

EPA Registration No.: 72155-5

Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-800-331-2867

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium methylarsonate</td>
<td>2163-80-6</td>
<td>9.81</td>
</tr>
<tr>
<td>2,4-D, dimethylamine salt</td>
<td>2008-39-1</td>
<td>3.18</td>
</tr>
<tr>
<td>Mecoprop-P-dimethylamine salt</td>
<td>66423-09-4</td>
<td>1.60</td>
</tr>
<tr>
<td>Dicamba, dimethylamine salt</td>
<td>2300-66-5</td>
<td>0.79</td>
</tr>
</tbody>
</table>

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview: Caution! Moderate eye irritation. Harmful if swallowed. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling.

Physical State: liquid

Odor: slight amine odour

Appearance: white to beige

Routes of Exposure: Skin Absorption, Skin contact, Inhalation, Ingestion, Eye contact

Immediate Effects:
- Eye: Moderate eye irritation. Avoid contact with eyes.
- Skin: May cause irritation, redness, swelling on prolonged contact. May cause sensitization by skin contact. Avoid contact with skin and clothing.
**Ingestion**
May cause nausea, vomiting, abdominal pain. Harmful if swallowed. Do not take internally.

**Inhalation**
May cause irritation of the mucous membranes. May cause upper respiratory tract irritation. Avoid breathing spray mist.

**Chronic or Delayed Long-Term**
This product or its components may have target organ effects. This product or its components may have long term (chronic) health effects.

**Medical Conditions Aggravated by Exposure**
Individuals with allergic history or pre-existing dermatitis should use extra care in handling this product.

**Potential Environmental Effect**
Toxic to aquatic invertebrates.

### SECTION 4. FIRST AID MEASURES

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

**Eye**
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.

**Skin**
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.

**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.

**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.

**Notes to Physician**

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.</td>
</tr>
<tr>
<td>headache</td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
</tr>
<tr>
<td>Diarrhoea</td>
<td></td>
</tr>
<tr>
<td>Convulsions</td>
<td></td>
</tr>
<tr>
<td>in serious cases</td>
<td></td>
</tr>
<tr>
<td>unconsciousness</td>
<td></td>
</tr>
<tr>
<td>heart and circulation failure</td>
<td></td>
</tr>
</tbody>
</table>
### SECTION 5. FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th><strong>Flash point</strong></th>
<th>&gt; 93.4 °C / &gt; 200.1 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fire and Explosion Hazards</strong></td>
<td>In the event of fire the following can be released: hydrogen chloride (HCl) nitrogen oxides (NOx) carbon monoxide (CO)</td>
</tr>
<tr>
<td><strong>Suitable Extinguishing Media</strong></td>
<td>Carbon dioxide (CO2), Dry chemical, Foam, Water</td>
</tr>
<tr>
<td><strong>Fire Fighting Instructions</strong></td>
<td>Fight fire from upwind position. Keep out of smoke. Cool closed containers/tanks exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.</td>
</tr>
</tbody>
</table>

### SECTION 6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th><strong>Personal Precautions</strong></th>
<th>Isolate hazard area. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methods for Cleaning Up</strong></td>
<td>Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.</td>
</tr>
<tr>
<td><strong>Additional Advice</strong></td>
<td>Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact vegetation.</td>
</tr>
</tbody>
</table>

### SECTION 7. HANDLING AND STORAGE

<table>
<thead>
<tr>
<th><strong>Storing Procedures</strong></th>
<th>Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work/Hygienic Procedures</strong></td>
<td>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. Remove soiled clothing immediately and clean thoroughly before using again. Before removing gloves clean them with soap and water. Wash thoroughly and put on clean clothing.</td>
</tr>
</tbody>
</table>
SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection
There are no known hazards associated with this product when used according to the label directions. The following guidelines should be followed.

Avoid inhalation of vapour or mist. Avoid contact with skin and eyes.

Do not allow children or pets to enter the treated area until it has dried.

Hand Protection
Chemical resistant nitrile rubber gloves

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

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
<th>OSHA Z1A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium methylarsenate</td>
<td>2163-80-6</td>
<td>TWA</td>
<td>as As</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceiling</td>
<td>as As</td>
<td>0.002 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time</td>
<td>as As</td>
<td>29 CFR 1910.1018</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance     white to beige
Physical State liquid
Odor           slight amine odour
pH             7.5 - 8.5 (100 %) at 20 °C
Specific Gravity 1.07 - 1.09 at 20 °C
Boiling Point 100 °C / 212 °F
**Material Safety Data Sheet**

**BAYER ADVANCED ALL-IN-ONE LAWN WEED AND CRABGRASS KILLER CONCENTRATE**

**Melting / Freezing Point**  
< 1.7 °C / < 35.1 °F

**Water solubility**  
soluble

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### SECTION 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Conditions to Avoid</th>
<th>Freezing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatibility</td>
<td>Acids</td>
</tr>
<tr>
<td></td>
<td>Metals</td>
</tr>
<tr>
<td></td>
<td>Aluminium</td>
</tr>
<tr>
<td></td>
<td>Copper</td>
</tr>
<tr>
<td></td>
<td>Tin</td>
</tr>
<tr>
<td></td>
<td>Zinc</td>
</tr>
</tbody>
</table>

**Hazardous Decomposition Products**  
Monosodium acid methanearsoate (MSMA), in the presence of many metals, can react with nascent hydrogen to form arsine gas.

**Hazardous Reactions**  
Stable under normal conditions.

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### SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity data have been bridged from a similar formulation containing a higher percentage of the active ingredients, MSMA, 2,4-D, MCPP-p and Dicamba. The non-acute information pertains to the technical-grade active ingredients.

**Acute Oral Toxicity**  
male/female combined rat: LD50: 2,488 mg/kg

**Acute Dermal Toxicity**  
rat: LD50: > 5,000 mg/kg

**Acute Inhalation Toxicity**  
rat: LC50: > 2.1 mg/l  
Exposure time: 4 h  
Determined in the form of liquid aerosol.  
Highest attainable concentration.  
No deaths  
rat: LC50: > 8.4 mg/l  
Exposure time: 1 h  
Determined in the form of liquid aerosol.  
Extrapolated from the 4 hr LC50.

**Skin Irritation**  
rabbit: Slight irritation.

**Eye Irritation**  
rabbit: Mild eye irritation.

**Sensitization**  
guinea pig: Non-sensitizing.
Chronic Toxicity

MSMA caused effects in the gastrointestinal tract, particularly the large intestine, and the kidney following oral exposure.

2,4-D caused effects in the thyroid, eyes, kidneys, adrenals, and ovaries/testes at dose levels above the saturation of renal clearance in chronic studies in laboratory animals.

MCPP-p caused kidney effects in chronic toxicity studies in rats and mice. MCPP-p did not target any organs in a chronic study in dogs.

Dicamba did not target any organs in chronic toxicity studies in rats and dogs.

Assessment Carcinogenicity

MSMA has been classified by EPA as "no evidence for carcinogenicity" based on the lack of evidence of carcinogenicity in rats and mice.

2,4-D was not carcinogenic in lifetime feeding studies in rats and mice. EPA has classified 2,4-D as a Group D chemical [not classifiable as to human carcinogenicity].

MCPP-p was not carcinogenic in a lifetime feeding study in rats but caused an increased incidence of lung tumors in male mice.

Dicamba was not carcinogenic in lifetime feeding studies in rats and mice. EPA has classified dicamba "not likely to be carcinogenic to humans."

ACGIH

Sodium methylarsonate 2163-80-6 Group A1
2,4-D, dimethylamine salt 2008-39-1 Group A4

NTP

Sodium methylarsonate 2163-80-6

IARC

Sodium methylarsonate 2163-80-6 Overall evaluation: 1

OSHA

Sodium methylarsonate 2163-80-6

Reproductive & Developmental Toxicity

REPRODUCTION:

MSMA was not a reproductive toxicant in a two-generation study in rats.

2,4-D caused reproductive toxicity at dose levels above the saturation of renal clearance in multi-generation studies in rats.

MCPP-p was not a reproductive toxicant in a two-generation study in rats.

Dicamba was not a primary reproductive toxicant in a two-generation reproduction study in rats. Reproductive effects were observed only at doses that caused parental systemic toxicity. Offspring toxicity was manifested at a dose lower than parental systemic toxicity.

DEVELOPMENTAL TOXICITY:
MSMA was not a developmental toxicant in developmental toxicity studies in rats and rabbits.

2,4-D is not a primary developmental toxicant in rats and rabbits. Developmental effects were observed at doses that caused maternal toxicity.

MCPP-p was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in rats but were considered secondary to maternal toxicity.

Dicamba was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in rabbits but were considered secondary to maternal toxicity.

### Neurotoxicity

MSMA did not demonstrate the potential to cause neurotoxicity in standard toxicity studies using mice, rats, rabbits and dogs.

2,4-D has demonstrated neurotoxicity in rats following acute and chronic exposure at dose levels above saturation of renal clearance.

MCPP-p demonstrated neurobehavioral effects without correlating neuropathological findings in an acute oral neurotoxicity study in rats.

Dicamba has demonstrated the potential to cause neurotoxicity at high doses in laboratory animals.

### Mutagenicity

MSMA was not mutagenic in a battery of in vitro and in vivo tests.

2,4-D has been tested in both in vitro and in vivo genotoxicity tests and was not mutagenic, although some cytogenetic effects were observed.

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

Dicamba did not demonstrate evidence of mutagenic potential, although, some positive results have been reported in the published literature.

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### SECTION 12. ECOLOGICAL INFORMATION

#### Environmental Precautions

Do not allow to get into surface water, drains and ground water. Drift or runoff from treated areas may adversely affect non-target plants. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.
SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance
It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines. Never place unused product down any indoor or outdoor drain.

Container Disposal
Do not re-use empty containers. Place empty container in trash.

RCRA Classification
The RCRA Classifications may be on the individual component(s) and not necessarily on the product as a whole.

2163-80-6
Sodium methylarsonate

2008-39-1
2,4-D, dimethylamine salt

2008-39-1
2,4-D, dimethylamine salt

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:
Not regulated For Domestic Surface Transportation

FREIGHT CLASSIFICATION:
Compounds, Tree or Weedkilling, N.O.I., other than poison, having a density of 20 LBS. or greater per cubic foot

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 72155-5

US Federal Regulations
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.
Bayer Environmental Science

Material Safety Data Sheet

BAYER ADVANCED ALL-IN-ONE LAWN WEED AND CRABGRASS KILLER CONCENTRATE

SARA Title III - Section 313 - Toxic Chemical Release Reporting
- Sodium methylarsonate 2163-80-6 0.1%
- Dicamba, dimethylamine salt 2300-66-5 1.0%

US States Regulatory Reporting

CA Prop65
- This product contains a chemical known to the State of California to cause cancer. Sodium methylarsonate 2163-80-6
- This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
- Sodium methylarsonate 2163-80-6 CA, CT, IL, MI, MN, NJ, PA, RI
- 2,4-D, dimethylamine salt 2008-39-1 CT
- Dicamba, dimethylamine salt 2300-66-5 NJ

Canadian Regulations
- Canadian Domestic Substance List
  None.

Environmental
- CERCLA
  Sodium methylarsonate 2163-80-6 1 lbs
  2,4-D, dimethylamine salt 2008-39-1 100 lbs

Clean Water Section 307 Priority Pollutants
  None.

Safe Drinking Water Act Maximum Contaminant Levels
  None.

International Regulations
- European Inventory of Existing Commercial Substances (EINECS)
  Sodium methylarsonate 2163-80-6
  2,4-D, dimethylamine salt 2008-39-1
  Dicamba, dimethylamine salt 2300-66-5

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
- Health - 2
- Flammability - 1
- Reactivity - 0
- Others - none
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Updated for general editorial purposes. Updated due to new system and numbering scheme.

Revision Date: 05/09/2007

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