SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: COURAZE™ 2F
Product Use: Insecticides

Supplier name and address:
Cheminova Inc.
P.O. Box 110566
One Park Drive, Suite 150
Research Triangle Park, NC 27709
Phone #: (919) 474-6600 (8 AM to 5:00 PM EST, Monday to Friday).
Emergency Telephone #: 1-866-303-6950 (Medical Emergencies)
1-800-424-9300 (24 Hr. Chemtrec Number)

MSDS Prepared by: Cheminova Inc.
MSDS Preparation date: May 19, 2008
Revision date: December 11, 2009
Revision reasons: Update Supplier Address

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>Imidacloprid</td>
<td>138261-41-3</td>
<td>21.40</td>
</tr>
</tbody>
</table>

SECTION 3. HAZARDS IDENTIFICATION

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

Emergency Overview
Caution! Hazard to humans and domestic animals. Keep out of reach of children and animals. Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes and clothing. Avoid breathing spray mist.

Physical State
viscous liquid suspension

Odor
mild

Appearance
off-white

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

Immediate Effects
Eye
May cause eye irritation. Eye injury may persist for several days.

Skin
Harmful if absorbed through skin. No skin irritation. Non-sensitizing.

Ingestion
Harmful if swallowed.

Inhalation
Harmful if inhaled.
Cheminova, Inc.
Material Safety Data Sheet
Couraze™ 2F

Chronic or Delayed Long-Term
This product or its components may have target organ effects.

Medical Conditions Aggravated by Exposure
No specific medical conditions are known which may be aggravated by exposure to this product.

Potential Environmental Effect
Highly toxic to bees. Extremely toxic to aquatic and estuarine 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 Treatment
There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5. FIRE FIGHTING MEASURES

Flash point
> 93 °C / > 199 °F

Lower Flammability Limit
not applicable

Upper Flammability Limit
not applicable

Fire and Explosion Hazards
In the event of fire the following can be released:
- Hydrogen chloride (HCl)
- Nitrogen oxides (NOx)
Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Fire Fighting Instructions
Keep out of smoke. Fight fire from upwind position. Cool closed containers/tanks exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

Methods for Cleaning Up
Dike area to prevent runoff. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Clean contaminated floors and objects thoroughly, observing environmental regulations. Collect and transfer the product into a properly labelled and tightly closed container. Contaminated soil may have to be removed and disposed.

Additional Advice
Contact Cheminova for further assistance if necessary. Information regarding personal protective equipment, see section 8.

SECTION 7. HANDLING AND STORAGE

Handling Procedures
Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Storing Procedures
Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed.

Work/Hygienic Procedures
Remove soiled clothing immediately and clean thoroughly before using again. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash thoroughly and put on clean clothing.

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

Min/Max Storage Temperatures
Recommended maximum transport/storage temperature: 38 °C / 100 °F
The 30-day storage temperature average must not exceed the recommended maximum.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection
Follow all label instructions. Eye wash facility and safety shower should be available. Follow manufacturer's instructions for cleaning/maintaining PPE. If no
such instructions for washables, use detergent and warm/tepid water.

Eye/Face Protection
splash goggles

Hand Protection
Chemical resistant gloves made of waterproof material such as polyethylene or polyvinyl chloride

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

Respiratory Protection
No personal respiratory protective equipment normally required. 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.

Exposure Limits
This product contains material which are Trade Secret and may have Occupational Exposure Limits.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>off-white</td>
</tr>
<tr>
<td>Physical State</td>
<td>viscous liquid suspension</td>
</tr>
<tr>
<td>Odor</td>
<td>mild</td>
</tr>
<tr>
<td>pH</td>
<td>7.5</td>
</tr>
<tr>
<td>Density</td>
<td>1.12 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Melting / Freezing Point</td>
<td>-6.7 °C / 19.9 °F</td>
</tr>
<tr>
<td>Water solubility</td>
<td>dispersible</td>
</tr>
<tr>
<td>Viscosity</td>
<td>350 - 500 mPa.s at 25 °C</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

| Incompatibility     | no data available             |
| Hazardous
Decomposition Products | Hydrogen chloride (HCl) |
|                     | Hydrogen cyanide (hydrocyanic acid) |
|                     | Carbon dioxide (CO2)          |
|                     | Carbon monoxide               |
|                     | Nitrogen oxides (NOx)         |
| Hazardous Reactions | Stable under normal conditions. |
SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been conducted on this product as formulated. The non-acute information pertains to the active ingredient, imidacloprid.

**Acute Oral Toxicity**
- male rat: LD50: > 4,870 mg/kg
- female rat: LD50: 4,143 mg/kg

**Acute Dermal Toxicity**
- male/female combined rabbit: LD50: > 2,000 mg/kg

**Acute Inhalation Toxicity**
- male/female combined rat: LC50: > 5.33 mg/l
  - Exposure time: 4 h
  - Determined in the form of liquid aerosol.
  - (actual)
- male/female combined rat: LC50: > 20 mg/l
  - Exposure time: 1 h
  - Determined in the form of liquid aerosol.
  - Extrapolated from the 4 hr LC50.
  - (actual)

**Skin Irritation**
- rabbit: No skin irritation.

**Eye Irritation**
- rabbit: Minimally irritating.

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

**Chronic Toxicity**
- Imidacloprid caused thyroid and/or liver effects in chronic dietary studies in rats and dogs.

**Assessment Carcinogenicity**
- Imidacloprid was not carcinogenic in studies in rats and mice.

**ACGIH**
- None.

**NTP**
- None.

**IARC**
- None.

**OSHA**
- None.

**Reproductive & Developmental Toxicity**
- **REPRODUCTION:** Imidacloprid was not a reproductive toxicant in a multi-generation study in rats.

- **DEVELOPMENTAL TOXICITY:** Imidacloprid is not considered a primary developmental toxicant in rats and rabbits. Developmental effects were observed at doses that caused maternal toxicity.
Neurotoxicity

Imidacloprid showed slight behavioral and activity changes only at the highest dose tested in neurotoxicity studies in rats. There were no correlating morphological changes observed in the neural tissues.

Mutagenicity

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

SECTION 12. ECOLOGICAL INFORMATION

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. Notify state/provincial or local authorities and Cheminova immediately if you observe any adverse environmental effects due to the use of this product. Do not allow to get into surface water, drains and ground water. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Follow container label instructions for disposal of wastes generated during use in compliance with the product label. In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.

Container Disposal

Triple rinse containers. 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.

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:
Not regulated for Domestic Surface Transportation

FREIGHT CLASSIFICATION:
Insecticides or Fungicides, N.O.I., other than poison

SECTION 15. REGULATORY INFORMATION

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.

SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
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
None.

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.

Clean Water Section 307 Priority Pollutants
None.

Safe Drinking Water Act Maximum Contaminant Levels
None.

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
Health - 1  Flammability - 1  Reactivity - 1  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.

Revision Date: 12/11/2009

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. Couraze™ is a trademark of Cheminova.