MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION OF THE PRODUCT

PRODUCT NAME          ACETAMIPRID 20%SP
TRADE NAME            ACEPRID 20SP®
CHEMICAL NAME         (E)-N1-[(6-chloro-3-pyridyl)methyl]-N2-cyano-N1-methylacetamidine
CHEMICAL GROUP        NEONICOTINOID
OTHER NAMES           ACETAED 20%SP
RECOMMENDED USE       INSECTICIDE
FORMULATOR            JIANGSU INTER-CHINA GROUP CORPORATION®
ADDRESS               ROOM 506 INTER-CHINA BUILDING NUMBER 116 DINGMAOQIAO ROAD ZHENJIANG JIANGSU CHINA
TEL                    86-511-84416352 FAX: 86-511-84441036
DISTRIBUTOR           AGRICHEM AFRICA LIMITED®
ADDRESS               P O BOX 27151 GPO 00100 NAIROBI KENYA
TEL                    +254 733 806 200 +254 727 531 010 +254 720 325 144 +254 20 2642115

2 COMPOSITION INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>CAS NUMBER</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active ingredient</td>
<td>Acetamiprid</td>
<td>135410-20-7</td>
</tr>
<tr>
<td>Inert ingredient</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Other ingredients,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>including water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

NON-HAZARDOUS SUBSTANCE - NON-DANGEROUS GOOD

POTENTIAL HEALTH EFFECTS

Eye Contact  No eyes and skin irritant. Not flammable

Skin Contact  No skin irritation or skin sensitization

Inhalation  Moderately toxicity if inhaled

Ingestion  Highly or moderately toxic orally in animal studies

Sensitisation:  Not a skin sensitiser

Hazard Designation  Dangerous for the environment

Risk Phrases  Not applicable

Safety Phrases  Not applicable

SUSDP Classification  Not applicable

4 FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Center, and follow the advice given. Show this Material Safety Data Sheet to a doctor.

Inhalation  Remove person to fresh air. Seek medical advice. If breathing is difficult, give artificial respiration, preferably mouth-to-mouth.

Ingestion  Wash out mouth. Give plenty of water or bland fluids to drink. Get medical attention. (never give anything by mouth to an unconscious person).

Eye Contact  Flush immediately eyes with copious amount of water for at least 15 minutes.

Skin Contact  Wash material off of the skin with plenty of soap and water. Remove all contaminated clothing; Seek medical advice if there is more than trivial exposure.

First Aid Facilities  Provide washing facilities in the workplace.
5 FIRE FIGHTING MEASURES

Extinguishing media

Alcohol-resistant foam, dry sand, powder, carbon dioxide.

Precautions for Fire Fighters Firefighters should wear a self-contained respiratory apparatus and protective clothing.
Flash Point N/A
Auto-ignition Temperature No Data
Lower Explosive Limit N/A
Upper Explosive Limit No Data
Unusual Hazards No Data

Unusual Fire, Explosion and Reactivity Hazards
During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO₂ extinguishing media. 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.

Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions Wear an air-supplied respirator or use adequate ventilation to prevent inhalation. Wear suitable protective clothing and eye protection to avoid contact with eyes and skin.

Environmental precautions The material is toxic to fish and wildlife. Avoid soil and water contamination.

Methods for Cleaning Up Soak up with water or other material. Collect thoroughly into suitable containers. Rinse the polluted area with water and suitable detergents. Collect waste waters for treatment.
7 HANDLING AND STORAGE

Handling  When using, do not eat, drink or smoke. Wash hands and exposed skin before meals and after work.

Storage  Store in the closed container, keep away from food, drink and animal feeding stuffs. Keep out of the reach of children. Keep container in a dry and well ventilated place at low temperature. Do not store this material near food, feed or drinking water. Store in a well ventilated area.

Handling Procedures  Do not handle material near food, feed or drinking water.

Avoid high concentrations of dust in air and accumulation of dust on equipment. An airborne dust of this material can create a dust explosion. When handling and processing this material local exhaust ventilation may be required to control dust and reduce exposure to vapors. To prevent dust explosions employ bonding and grounding for operations capable of generating static electricity. Protect all equipment from explosions by following the guidelines in NFPA-68 and NFPA-69. For electrical equipment follow local codes and electrical classification NFPA-70 (the National Electrical Code), class II, division 2, group G.

Other  Completely empty bag into application equipment. Dispose empty bag in a sanitary landfill or by incineration as allowed by state and local authorities. Avoid inhalation of smoke if incinerated.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

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.

Exposure Standards  No exposure standard has been established by the National Occupational Health and Safety Commission (NOHSC) for the product or its ingredients.

Engineering Controls  Control process conditions to avoid contact. Use local exhaust ventilation during manufacture. Use in a well-ventilated area only.

Personal Protective Equipment

Respiratory Protection Wear mask with filter for organic dusts

Hand Protection Wear suitable protective gloves.

Eye Protection Where eye contact is likely, use chemical splash goggles.

Skin Protection Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant
headgear.

Stringent housekeeping measures are necessary to prevent translocation of the material from contaminated work surfaces to uncontaminated surfaces (railings, doors, etc.). Unprotected contact with such translocated material can result in paresthesia effects.

9 PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** Colorless solid

**Odour** Odourless.

**Vapour Pressure** $<1 \times 10^{-3} \text{mPa (20 °C)}$

**Vapour Density** Greater than 1 (air = 1)

**Freezing / Melting Point** 98.00°C

**Solubility** Solubility in water and organic solvents (as stated temperature), Soluble in water 4250mg/l(250°C), Soluble in acetone, methanol, ethanol, dichloromethane, chloroform, acetonitrile and tetrahydrofuran.

**pH** 6-9

**Flash Point** Not available

10 STABILITY AND REACTIVITY

**Storage Stability** Under good storage conditions keeps physical and chemical properties over 2 years from the date of manufacture when stored in unopened, airtight, original packages.

**Heat Stability (2 weeks at 54°C)** Decompose rate is less than 5%

**Cold Stability (for Liquid)** Decompose rate is less than 5%

**Chemical Stability** Stable under normal atmospheric conditions when stored in closed containers. Conditions to avoid: spark generation and flames.

**Incompatible Materials** Strong alkali and acids

**Hazardous Decomposition Products** Combustion may lead to hazardous oxides of carbon and other toxic fumes.
TOXICOLOGICAL INFORMATION

Acetamiprid is toxic to birds, moderately toxic to bees and moderately low toxic to fish. It does not bioconcentrate in aquatic organisms. Acetamiprid is stable to light. And it is expected to be moderately to highly mobile in most soils and aquatic sediments. However, acetamiprid undergoes rapid degradation in the environment with lack of accumulation and persistence.

Carcinogenicity

Statement of conclusion: (mouse) NOAEL: 20.3/75.9 mg/kg/day (M/F), LOAEL: 65.6/214.6 mg/kg/day (M/F: decreased BW & BW gain and amyloidosis in numerous organs (M) and decreased BW and BW gain (F)). Not oncogenic under conditions of study.

Delayed Neurotoxicity

NOEL acute = 10 mg/kg b.w. based on reduced locomotor activity in the rat at high and medium dose NOEL subchronic = 200 ppm (14.8 and 16.3 mg/kg b.w./day for males and females respectively) based on reduced body weight and food consumptions.

Teratogenicity and Reproduction

Reproduction

Groups of 25 male and 25 female Sprague Dawley rats were given diets containing 0, 30, 120, or 1200 ppm Acetamiprid (96.0%) per day. The homogeneity, stability, and concentrations of Acetamiprid in the diets were acceptable.

After 14 weeks of treatment, the parental (F0) animals were mated for up to 21 Days. The F0 females were allowed to litter and to rear their offspring (Fla generation) to weaning. After a 14-week maturation period after weaning, the parental F1 animals, selected from the Fla offspring, were mated for up to 21 days and the females were allowed to litter and rear their offspring (F2a generation) to weaning. After weaning of the F2a pups and review of the results of rearing and weaning, including high pup mortality in all groups, the F1 generation was mated again, six weeks after weaning of the surviving F2a pups. The F1 animals were allowed to mate for a maximum of 21 days with the same partner, as during the first mating, and to produce a second litter (F2b).

Results

In a two-generation study, groups of 25 male and 25 female rats were given diets containing Acetamiprid (purity, 96%) at doses of 0, 30, 120, or 1200 ppm. The homogeneity, stability, and concentrations of Acetamiprid in the diets were acceptable.
After 14 weeks of treatment, the parental (F0) animals were mated for up to 21 days. The F0 females were allowed to litter and to rear their offspring (F1a generation) to weaning. After a 14-week maturation period after weaning, the parental F1 animals, selected from the F1a offspring, were mated for up to 21 days and the females were allowed to litter and rear their offspring (F2a generation) to weaning. After weaning of the F2a pups and review of the results of rearing and weaning, including high pup mortality in all groups, the F1 generation was mated again, six weeks after weaning of the surviving F2a pups. The F1 animals were allowed to mate for a maximum of 21 days with the same partner, as during the first mating, and to produce a second litter (F2b).

The body-weight gain of males of the F0 generation at 120 ppm was reduced, but the body-weight gain of F1 and F2 animals at 1200 ppm was not affected. For F1, some changes happen in body weight and food consumption, organ weights, and thyroid and pituitary histopathology.

The NOAEL was 100 ppm for male and female F0 animals, >6.5 ppm for the F1a and F2a offspring.

Teratogenicity

Groups of 24 female Crl:CD(SD)BR rats mated to males of the same strain were given doses of 0, 10, 60, 360 mg Acetamiprid technical (96.0%) /kg bw/day in corn oil by gavages Days 7-16 of gestation. The day a copulation plug was observed was designated Day 1 of gestation. Body weight, food consumption and clinical condition were monitored throughout the study. On Day 21 of gestation, the rats were killed and examined for gross pathology, liver and uterine weights.

Results

There were no signs related to treatment with Acetamiprid technical. Hind limb paralysis, decreased body weight gain and food and water consumption were affected by treatment with Acetamiprid technical 160 mg/kg b.w./day.

Decreased ossification of the intraperitoneal bone, increase in the size of the anterior fontanelle, incomplete ossification of the thoracic vertebrae were observed at 7 mg/kg b.w./day. The administration of Acetamiprid technical did not produce gross internal or external abnormalities and the study did not reveal any teratogenic properties under these experimental conditions. There was no effect of maternal treatment on implantation counts and in utero growth and development.

There was no evidence for carcinogenicity. The NOAEL was 160 ppm.
Mutagenicity

<table>
<thead>
<tr>
<th>Study</th>
<th>Doses/conc</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ames test: S.typhi 98, 100, 1537</td>
<td>-----</td>
<td>Negative</td>
</tr>
<tr>
<td>Chromosome aberration, Ch. Hamster</td>
<td>-----</td>
<td>Negative</td>
</tr>
<tr>
<td>ovary cells. With &amp; without metabolic activation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNA repair in rat hepatocytes</td>
<td>-----</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Statement of conclusion not mutagenic

Acceptable Daily Intake

ADI is calculated on the basis of the NOAEL in the most susceptible species, the dog in this case, in the long-term studies and a appropriate safety factor (usually 100):
ADI=0.066mg/kg body weight per day.

NOEL

Acceptable daily intake (ADI) is calculated on the basis of the NOAEL in the most susceptible species, the dog in this case, in the long term studies and an appropriate safety factor (usually 100)
ADI= 0.066mg/kg body weight per day.
Permissible daily intake (MPI)

60×ADI = 3.96mg/person/day

12 ECOLOGICAL INFORMATION

Eco-toxicology

Effect on non-target organisms

Bee toxicity

Honeybees

Acute oral toxicity
LD 50 ~ 14.53 microg./bee (acetamiprid)
LD50 8.85 microg. a.s./bee (EXP 60707 A tested formulation)
(acetamiprid 20 %)

Acute contact toxicity
LD50 ~ 8.09 microg./bee (acetamiprid)
LD50 9.26 microg. a.s./bee (EXP 60707 A tested formulation)
(acetamiprid 20 %)

Statement on bee toxicity: moderately toxic to bees.
Aquatic toxicity
96-hour exposure resulted in the following LC50 values:

<table>
<thead>
<tr>
<th>Species substance</th>
<th>Test</th>
<th>Time Scale</th>
<th>Toxicity (mg / l)</th>
<th>Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute toxicity fish:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncorhynchis mykiss</td>
<td>Acetamiprid</td>
<td>96 h</td>
<td>&gt;100</td>
<td>Mortality, EC50</td>
</tr>
<tr>
<td>Oncorhynchis IM-1-4</td>
<td>Metabolite</td>
<td>96 h</td>
<td>98.1</td>
<td>Mortality, LC50</td>
</tr>
<tr>
<td><strong>Long term toxicity fish:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pimephales promelas</td>
<td>Acetamiprid</td>
<td>35 days</td>
<td>19.2</td>
<td>Growth NOEC</td>
</tr>
<tr>
<td><strong>Bioaccumulation fish:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daphnia magna</td>
<td>Acetamiprid</td>
<td>48 Hours</td>
<td>49.8</td>
<td>Mortality, EC50</td>
</tr>
<tr>
<td><strong>Invertebrate:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daphnia magna</td>
<td>Metabolite</td>
<td>48 Hours</td>
<td>43.9</td>
<td>Mortality, EC50</td>
</tr>
<tr>
<td>IM-1-4</td>
<td>Metabolite</td>
<td>48 Hours</td>
<td>99.8</td>
<td>Mortality, EC50</td>
</tr>
<tr>
<td>IM-1-2</td>
<td>Metabolite</td>
<td>48 Hours</td>
<td>&gt;95.1</td>
<td>Mortality, EC50</td>
</tr>
<tr>
<td>IC-0</td>
<td>Metabolite</td>
<td>48 Hours</td>
<td>&gt;159</td>
<td>Mortality, EC50</td>
</tr>
<tr>
<td>60707A (acetamiprid 20 %)</td>
<td>Metabolite</td>
<td>48 Hours</td>
<td>&gt;98.3</td>
<td>Biomass, EC50</td>
</tr>
<tr>
<td>60707A (acetamiprid 20 %)</td>
<td>EXP</td>
<td>48 Hours</td>
<td>&gt;97.8</td>
<td>Biomass, EC50</td>
</tr>
<tr>
<td><strong>Chronic toxicity Invertebrate:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daphnia magna</td>
<td>Acetamiprid</td>
<td>21 Days</td>
<td>5</td>
<td>Reproduction, NOEC</td>
</tr>
<tr>
<td><strong>Acute toxicity algae:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenedesmus subspicatus</td>
<td>Acetamiprid</td>
<td>72 Hours</td>
<td>&gt;98.3</td>
<td>Biomass, EC50</td>
</tr>
<tr>
<td>Scenedesmus</td>
<td>EXP</td>
<td>72 Hours</td>
<td>&gt;97.8</td>
<td>Biomass, EC50</td>
</tr>
<tr>
<td>Scenedesmus subspicatus</td>
<td>60707A (acetamiprid 20 %)</td>
<td>EXP</td>
<td>28 Days</td>
<td>Emergence &amp;</td>
</tr>
</tbody>
</table>
Statement on fish toxicity: The toxicity to fish is moderately low.

Accumulation on natural enemies: Bioaccumulation to be expected under practical condition:
acetamiprid does not accumulate in aquatic organisms.
Effect on natural enemies: no toxic used as directed.
Effect on earthworm: N/A
Effect on birds:
The following values were determined in acute oral studies:
Species                        Acute oral LD50 (mg/L)
Bobwhite quail                180

Statement on bird toxicity:

Typhlodromus pyri Protonymphs Off-Crop - 1.1 (day 0) Corrected Mortality %
(13 g a.s./ha) 6.2 (day 0) Sublethal effects (% reduction)
In-crop 39.1 (day 0) to 5.1 (day 14) Corrected Mortality %
(100 g a.s./ha) Not assessed Sublethal effects (% reduction)

Aphidius rhopalosiphi Adult Off- crop 90 (day 0) to 0 Corrected Mortality %
(13 g a.s./ha) (day 14) 42.4 (day 7) to 32.5 (day 21) Sublethal effects (% reduction)
In-crop 70 (day 0) to 0 Corrected Mortality %
(100 g a.s./ha) (day 21)
### Coccinella septempunctata larvae

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Off-crop</th>
<th>In-crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 days old</td>
<td>42.9 (day 0) to 4.3 (day 14)</td>
<td>95.9 (day 0) to 26 (day 28)</td>
</tr>
<tr>
<td>(13 g a.s./ha)</td>
<td>-16.4 (day 7)</td>
<td>(100 g a.s./ha)</td>
</tr>
<tr>
<td>Corrected Mortality %</td>
<td>Corrected Mortality %</td>
<td></td>
</tr>
<tr>
<td>Sublethal effects (%) reduction</td>
<td>Sublethal effects (%) reduction</td>
<td></td>
</tr>
</tbody>
</table>

### Chrysoperla carnea larvae

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Off-crop</th>
<th>In-crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 days old</td>
<td>2.3 (day 0) to 0.1 (day 14)</td>
<td>16.3 (day 0) to 6.5 (day 14)</td>
</tr>
<tr>
<td>(13 g a.s./ha)</td>
<td>7.5 (day 7)</td>
<td>(100 g a.s./ha)</td>
</tr>
<tr>
<td>Corrected Mortality %</td>
<td>Corrected Mortality %</td>
<td></td>
</tr>
<tr>
<td>Sublethal effects (%) reduction</td>
<td>Sublethal effects (%) reduction</td>
<td></td>
</tr>
</tbody>
</table>

### Earthworms

**Acute toxicity**
- 9mg/Kg (at Day 14 - Acetamiprid)
- 18.3mg/Kg (at Day 14 - EXP 60707)
- > 1000mg/Kg (at Day 14 - metabolites IM-1-4 and IC-0)
- > 1000mg/Kg (at Day 14 - metabolites IM-1-2)
- > 1000mg/Kg (at Day 14 - metabolites IM-1-5)

**Reproductive toxicity**
- NOEC 1.26mg/Kg (8 Weeks - EXP 60707)

### Soil Micro-Organisms

**Nitrogen mineralization**
- No statistically significant effects > ± 25% compared to control when Acetamiprid is applied at 0.2Kg a.s./ha

**Carbon mineralization**
- No statistically significant effects > ± 25% compared to control when Acetamiprid is applied at 0.2Kg a.s./ha
### 13 DISPOSAL

Container disposal: Waste resulting from uses of product may be dispose of on site at an approved waste disposal facility. Do not contaminate water, food, and feed by dispose. Offer advice for recycling and dispose in a sanitary landfill if allowed.

### 14 TRANSPORT INFORMATION

UN number: 3077  
Proper shipping name: Class 9-P, UN No.3077, Marine Pollutant

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

### 15 STABILITY DETERMINATION IN CONTAINER

Shipping Information

**DOT HAZARD DESCRIPTION**

**PROPER SHIPPING NAME**  Environmentally Hazardous Substance, Solid, N.O.S.(Acetamiprid 20%)

**DOT HAZARD CLASSIFICATION**  Non-Hazardous

UN No.: UN 3077

Packing Group: III

UN Hazard Class: 9

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