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MATERIAL SAFETY DATA SHEET

SUBDUE 25 WP

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Product name: Metalaxyl 15% + Propamocarb hydrochloride 10% = 25% WP

Chemical name: *Metalaxyl:* Methyl N-(methoxyacetyl)- N-(2,6-xylyl)-DL-Alaninate; *Propamocarb hydrochloride:* Propyl 3-(dimethylamino) propylcarbamate hydrochloride

Product family: *Metalaxyl:* Phenylamide; *Propamocarb hydrochloride:* Carbamate

Company identification:

Yifan Biotechnology Group Co., Ltd.

No.555, Changan Road, Yaoxi Subdistrict, Longwan District, Wenzhou City, Zhejiang, China

SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS No.	Percent
Metalaxyl	57837-19-1	15
Propamocarb hydrochloride	25606-41-1	10
Inerts	---	Balance

SECTION 3 – HAZARDS IDENTIFICATION

Primary Routes of Exposure: Inhalation, Skin Contact, and Eye Contact.

Inhalation: Inhalation of dust can cause the following: irritation of nose and throat.

Eye Contact: Direct contact with material can cause the following: moderate irritation.

Skin Contact: Prolonged or repeated skin contact can cause the following: possible skin irritation and/or dermatitis due to skin sensitization.

SECTION 4 – FIRST AID MEASURES

Ingestion: If swallowed, seek medical advice immediately and show this container or label. DO NOT induce vomiting.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

Inhalation: Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or Poison Information Centre immediately.

SECTION 5 – FIRE FIGHTING MEASURES

Flammability: Non-flammable.

Extinguishing media: Water spray, carbon dioxide, foam, dry agent.

Special fire fighting procedures: Wear full protective equipment and breathing protection. Contain fire-fighting water by bunding area with sand or earth to prevent it entering any bodies of water. Dispose of fire control extinguishing agent and spillage later in safe manner.

Unusual fire and explosion hazards: Toxic gases including carbon monoxide, carbon dioxide, oxides of nitrogen, hydrogen chloride and smoke.

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SECTION 6 – ACCIDENTAL RELEASE MEASURES

Keep all bystanders away. Avoid contact with spilled material or contaminated surfaces. Do not smoke, eat or drink during the clean process. Wear personal protective clothing and equipment. Prevent spilled material from entering drains or watercourses. Reposition any leaking containers so as to minimise leakage. Sweep spilt material into a pile. Shovel into drums for disposal. Decontaminate spill area with detergent and water and rinse with the smallest volume of water practicable.

SECTION 7 – HANDLING AND STORAGE

Handling product: Keep out of reach of children. Avoid contact with eyes and skin and avoid inhalation of product. If product on skin, immediately wash area with soap and water.
Storage: Store in the closed, original container in a cool, secure, well-ventilated area. Do not store for prolonged periods in direct sunlight. Protect from frost.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

Eye protection: Safety goggles or face shield.
Skin protection: Cotton overall buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves.
Respiratory protection: Respiratory protection is not normally required. If airborne concentrations are likely to exceed the exposure standards above, an approved respirator should be worn.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Offwhite powder
Melting point: Not applicable
Vapor pressure (mPa): Negligible
Specific Gravity: Not applicable
Solubility (g/l): Form suspension with water
Molecular formula: *Metalaxyl:* $C_{15}H_{21}NO_4$; *Propamocarb hydrochloride:* $C_9H_{21}ClN_2O_2$
Molecular weight: *Metalaxyl:* 279.3; *Propamocarb hydrochloride:* 224.73

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable under normal storage conditions.
Conditions to avoid: Heat and light.
Incompatibility with other materials: Oxidizing agents and moisture.
Hazard decomposition: Combustion or thermal decomposition will evolve toxic and irritant vapours
Hazardous polymerization: Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute toxicity LD_{50} (mg/kg, rat): Oral > 5000, Dermal >2000 mg/kg.
Acute inhalation LC_{50}: > 2.0 mg/l / 4 hours for rats
Irritation: Not irritant for skin and slight eye irritant (rabbits)
Sensitisation: Not a skin sensitiser (Guinea pig)

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SECTION 12 – ECOLOGICAL INFORMATION

Metalaxyl:

Effects on birds: Acute oral LD_{50} for mallard ducks 1466 mg/kg. (8 d) LC_{50} for mallard ducks and bobwhite quail > 5000 mg/kg diet.

Effects on fish: LC_{50} (96 h) for rainbow trout and bluegill sunfish > 100 mg/l.

Effects on other organisms: Bees: Acute LD_{50} (contact) > 200µg/bee. Daphnia: LC_{50} (48 h) 29

Propamocarb hydrochloride:

Effects on birds: Acute oral LD_{50} for bobwhite quail > 2000, and mallard duck > 2000 mg/kg.

Effects on fish: LC_{50} (96 h) for rainbow trout and bluegill sunfish >90 ppm.

Effects on other organisms: Bees: Acute LD_{50} (contact) > 100 µg/bee. Daphnia: LC_{50} (48 h) . 106 mg/l.

SECTION 13 – DISPOSAL CONSIDERATION

For disposal, incinerate this material at a facility that complied with local, state and country regulations.

SECTION 14 – TRANSPORT INFORMATION

Not regulated as dangerous cargo.

SECTION 15 – REGULATORY INFORMATION

Not regulated.

SECTION 16 – OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we have been advised of the possibility of such damages.

For and on behalf of
YIFAN BIOTECHNOLOGY GROUP CO., LTD.

Date: 2012/6/25