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For Chemical Emergency:
 Spill, Leak, Fire, Exposure or Accident, Call:
 Chemtrec (24 Hours): (800) 424-9300
 Outside U.S., call collect: (703) 527-3887

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME: PROKoZ Prozalin 4L	CHEMICAL FORMULA: Oryzalin: 3,5-DinitroN4, N4-dipropyl-sulfanilamide
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SECTION 2 - HAZARDOUS INGREDIENT INFORMATION

Section 313 of SARA Title III: Ingredients subject to reporting are identified by asterisk (*)

CAS NO.	COMPONENT	%	ACGIH TLV	OSHA PEL	OTHER
019044-88-3	Oryzalin	41	N/A	N/A	N/A
	Inert Ingredients	59			

SECTION 3 - PHYSICAL PROPERTIES

BOILING POINT: 212 F	MELTING POINT: N/A	SPECIFIC GRAVITY (H ₂ O=1) 1.138 – 1.239 @ 25C (77F)	VAPOR PRESSURE (mmHg) 23 mmHg @ 25 C
VAPOR DENSITY (AIR=1): 1.178	% SOLUBILITY IN WATER: Miscible in water		% VOLATILE BY WEIGHT: NE
APPEARANCE: Bright orange opaque liquid	ODOR: Slight aromatic odor		EVAPORATION RATE (Butyl Acetate=1) <1

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT & METHOD: No Ignition up to 200F (93.3 C) SCC	FLAMMABLE LIMITS IN AIR - LEL: UEL: Water based product
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EXTINGUISHING MEDIA:
Water based product, will not burn

SPECIAL FIRE FIGHTING PROCEDURES: If product is involved in a fire, wear positive-pressure, self-contained breathing apparatus and full protective clothing

UNUSUAL FIRE AND EXPLOSION HAZARDS: If the water in the product has evaporated, the explosion potential of oryzalin as airborne dust is rated as severe. The minimum ignition temperature for a dust cloud is 714 °F (379 °C).

SECTION 5 - REACTIVITY DATA

STABILITY: Stable under normal conditions. If water in the mixture evaporates, however, the resultant mixture should be handled with care.

HAZARDOUS POLYMERIZATION: **N/A**

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides and other toxic gases may be formed if product is involved in a fire.

CONDITIONS & MATERIALS TO AVOID:
NONE

SECTION 6 - PROTECTIVE EQUIPMENT & EXPOSURE CONTROL METHODS

RESPIRATORY PROTECTION:
Atmospheric levels should be maintained below the exposure guidelines. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use NIOSH approved air-purifying respirator.

VENTILATION	LOCAL EXHAUST: ADEQUATE	MECHANICAL: ACCEPTABLE	SPECIAL: NONE	OTHER: NONE
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PROTECTIVE GLOVES: Chemical resistant gloves	EYE PROTECTION: Use safety glasses
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OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Long sleeved shirt and long pants; shoes plus socks	WORK/HYGIENIC PRACTICES: AVOID SKIN AND EYE CONTACT
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PRODUCT NAME: PROKoZ Prozalin 4L

SECTION 7 - HEALTH HAZARDS

PRIMARY ROUTES OF ENTRY:

SKIN AND EYES

CARCINOGEN:

NONE KNOWN

NTP:

N/A

IARC MONOGRAPHS:

N/A

OSHA:

N/A

INHALATION:

At room temperature, exposure to vapors are minimal due to physical properties.

EYE CONTACT:

May cause slight transient eye irritation. Corneal injury is unlikely.

SKIN CONTACT:

Prolonged exposure may cause some skin irritation.

INGESTION:

Single dose toxicity is low. The oral LD50 for rats is 5000 mg/kg

SECTION 8 - EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT:

IMMEDIATELY FLUSH EYES WITH WATER FOR AT LEAST 15 MINS.

SKIN CONTACT:

Wash off in flowing water or shower.

INHALATION:

Remove to fresh air if effects occur. Consult a physician.

INGESTION:

If swallowed seek medical attention. DO NOT induce vomiting unless directed to do so by medical personnel.

SECTION 9 - SPILL, LEAK & DISPOSAL INFORMATION

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Use absorbent material to contain and clean up small spills. Scoop up and dispose as waste in approved disposal facility. Prevent runoff. DISPOSE OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

WASTE DISPOSAL METHOD:

DISPOSE OF IN APPROVED WASTE DISPOSAL FACILITY IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 10 - SHIPPING DATA

DOT SHIPPING NAME:

NONE

SECTION 11 - SPECIAL PRECAUTIONS & OTHER INFORMATION

SPECIAL INSTRUCTIONS:

OTHER INFORMATION/PRECAUTIONS:

Read and follow all label instructions before use. Avoid contaminating water. Do not reuse containers. Open dumping is prohibited.

COMMON ABBREVIATIONS THAT MAY HAVE BEEN USED: N/A = NOT APPLICABLE N/E = NOT ESTABLISHED

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DATE: 03/23/04

Safety Data Sheet

Issue date: 10th July 2006
replaces all previous editions

SUBDUE

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY OR UNDERTAKING

Identification of the substance or preparation

Tradename SUBDUE
Design Code A13947A
AGI Code 26123

Company identification

Company Syngenta Crop Protection UK Ltd
 Whittlesford, CAMBRIDGE, CB2 4QT
Phone (01223) 833621
Fax (01223) 835211
Website www.syngenta-crop.co.uk
Emergency Phone +44 (0) 1484 538444 (24h)

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous component(s)

Product denomination	CAS number	EC number	% w/w	Hazard symbols	Risk phrases (R)
metalaxyl-M	70630-17-0	-	45.2	Xn	22, 41
2-heptanone	110-43-0	203-767-1	1 - 5	Xn	10, 20/22
ethanone, 1-phenyl-	98-86-2	202-708-7	10 - 20	Xn	22, 36
Benzenesulphonic acid, dodecyl-	27176-87-0	248-289-4	1 - 5	C	22, 35
amines, tallow alkyl, ethoxylated	61791-26-2	-	1 - 5	C	34
1,2-propanediol	57-55-6	200-338-0	20 - 30	-	-

For the full text of the R phrases mentioned in this section, see Section 16.

3. HAZARDS IDENTIFICATION

Harmful if swallowed. Irritating to the respiratory system. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST-AID MEASURES

General advice: Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control centre or physician, or going for treatment.

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 Control Centre immediately.

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.

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.

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

Medical advice: There is no specific antidote available. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:

Extinguishing media - small fires: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires: Use alcohol-resistant foam or water spray.

Extinguishing media which must not be used for safety reasons: Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during fire fighting: As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus.

Further information: Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Refer to protective measures listed in sections 7 and 8.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up: Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Additional advice: If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE

HANDLING

Advice on safe handling: No special technical protective measures required. No special handling advice required. Avoid contact with skin and eyes. When using, do not eat, drink or smoke. For personal protection see section 8.

STORAGE

Requirements for storage areas and containers: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feed.

Other data: Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Components	Exposure limit(s)	Value type	Source
metalaxyl-M	10mg/m ³	8 h TWA	SYNGENTA
propane-1,2-diol - total (vapour & particulates)	150 ppm 474 mg/m ³	8 h TWA	2002 EH40 OES
propane-1,2-diol - Particulates	10 mg/m ³	8 h TWA	2002 EH40 OES

ENGINEERING MEASURES

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne mists or vapours are generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit. Where necessary, seek additional occupational hygiene advice.

PERSONAL PROTECTIVE EQUIPMENT When using this product refer to the label for details. In all other cases, use the following Personal Protective Equipment:

Protective measures: The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice. Personal protective equipment should be certified to appropriate standards.

Respiratory protection: No personal respiratory protective equipment normally required. A particulate filter respirator may be necessary until effective technical measures are installed.

Hand protection: Chemical resistant gloves are not usually required. Select gloves based on the physical job requirements.

Eye protection: Eye protection is not usually required. Follow any site specific eye protection policies. Eye/face protection should be certified to EN 166.

Skin and body protection: No special protective equipment required. Select skin and body protection based on the physical job requirements.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour:	Yellow to orange.
Physical State/Form:	Liquid.
Flash-Point:	80 °C (767 mmHg).
pH Value:	6 -10 (1 % w/v).
Oxidising Properties:	Not oxidising.
Explosive Properties	Not explosive.
Density:	1.06 g/cm ³ (20 °C).
Water solubility:	Miscible.
Odour:	Like ketone.
Viscosity, dynamic:	50.2 mPa.s at 20 °C
Viscosity, dynamic:	21.0 mPa.s at 40 °C
Surface tension:	35.1 mN/m at 20 °C

10. STABILITY AND REACTIVITY

Hazardous decomposition products: Combustion or thermal decomposition will evolve toxic and irritant vapours.

Hazardous reactions: None known. Hazardous polymerization does not occur. Stable under normal conditions.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity LD50:	550 mg/kg (female rat)
Acute Dermal Toxicity LD50:	> 2000 mg/kg (rat)
Acute Inhalation Toxicity LD50:	> 5.58 mg/l (rat; 4 h)
Skin Irritation:	Non irritant (rabbit)
Eye Irritation:	Non irritant (rabbit)
Skin Sensitisation:	Not sensitising (guinea pig)
Long term toxicity:	Did not show carcinogenic, teratogenic or mutagenic effects in animal experiments.

12. ECOLOGICAL INFORMATION

ELIMINATION INFORMATION (PERSISTENCE AND DEGRADABILITY)

Bioaccumulation: Metalaxyl-M has low potential for bioaccumulation.

Stability in water: Metalaxyl-M is not persistent in water.

Stability in soil: Metalaxyl-M is not persistent in soil.

Mobility: Metalaxyl-M has a range from low to very high mobility in soil depending on soil type.

ECOTOXICITY EFFECTS

Toxicity to fish LC50: 15 mg/l (*Oncorhynchus mykiss* (Rainbow trout), 96 h)

Toxicity to aquatic invertebrates EC50: 61 mg/l (*Daphnia magna* (water flea), 48 h)

Toxicity to algae EBC50: 19 mg/l (*Pseudokirchneriella subcapitata* (green algae), 72 h)

Toxicity to algae ERC50: 39 mg/l (*Pseudokirchneriella subcapitata* (green algae), 72 h)

13. DISPOSAL CONSIDERATIONS

Product: Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken for local recycling or waste disposal. Do not re-use empty containers.

14. TRANSPORT INFORMATION

Land / Sea / Air (RID / ADR / IMDG / IATA): Not classified as dangerous goods

15. REGULATORY INFORMATION

Classification / Hazard Symbol	Xn	HARMFUL
Risk phrases (R)	22	Harmful if swallowed.
	37	Irritating to the respiratory system.
	52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety phrases (S)	2	Keep out of the reach of children.
	13	Keep away from food, drink and animal feeding stuffs.
	20/21	When using do not eat, drink or smoke.
	23	Do not breathe spray.
	35	This material and its container must be disposed of in a safe way.
	46	If swallowed, seek medical advice immediately and show this container or label.
	57	Use appropriate containment to avoid environmental contamination.
Special label	-	To avoid risks to man and the environment, comply with the instructions for use.

16. OTHER INFORMATION

Always read the label. Use pesticides safely.

Product registration number: MAPP 12503

Based on SDS issue date 11 October 2005, version 2. DPD compliant, with changed active content. Removal of N, DANGEROUS FOR THE ENVIRONMENT from section 15. previous edition issued June 2006 had major changes throughout data sheet – only sections 1, 3, 14, and 15 without significant update.

Text of R phrases mentioned in Section 2:

R10 Flammable.

R20/22 Harmful by inhalation and if swallowed.

R22 Harmful if swallowed.

R34 Causes burns.

R35 Causes severe burns.

R36 Irritating to eyes.

R41 Risk of serious damage to eyes.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.