Material Safety Data Sheet

Date prepared : September 13, 1994
Revised : November 11, 2005

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

1.1 Identification of the substance

Name of Product : **TARGA® Super 5EC**
Other Name : PILOT
Code No. : DS815
Type of Formulation : 50 g ai/L Emulsifiable Concentrate

1.2 Use of the Substance/Preparation

Function : Plant protection product, Herbicide

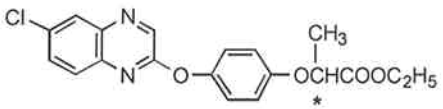
1.3 Company/Undertaking Identification

Nissan Chemical Industries, Ltd.
Kowa Hitotsubashi Building, 7-1, 3-chome, Kanda-Nishiki-cho, Chiyoda-ku, Tokyo 101-0054 JAPAN
Phone : +81-(0)3-3296-8151 Fax : +81-(0)3-3296-8016

2. COMPOSITION/INFORMATION OF INGREDIENTS

Chemical Composition :
Quizalofop-P-ethyl ..... 50 g/L
Emulsifier and aromatic hydrocarbons..... Balance

Active Ingredient
Common Name : Quizalofop-P-ethyl
Code No. : D(+) NC-302
CAS No. : 100646-51-3
Chemical Name : C.A. Propanoic acid, 2-[4-[(6-chloro-2-quinoxalinyl)oxy]phenoxy]-, ethyl ester, (R)-
IUPAC Ethyl (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propionate
Structural Formula :



Empirical Formula : $C_{19}H_{17}ClN_2O_4$
Molecular Weight : 372.81

Hazardous Component

Chemical name	CAS-No.	Symbol(s)	R-phrase(s)	Concentration (%)
quizalofop-P-ethyl	100646-51-3	Xn, N	R22, R50/53	5% (wt/v)
aromatic hydrocarbon		Xn, N	R51/53, R65, R66	> 5% - < 25%
aromatic hydrocarbon		Xn, Xi	R10, R37, R65, R66, R67	> 25% - < 50%

3. HAZARD IDENTIFICATION

Flammable.
Harmful by inhalation.
Irritating to skin.
Risk of serious damage to eyes.
May cause sensitization by skin contact.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Harmful: may cause lung damage if swallowed.
Vapors may cause drowsiness and dizziness.

4. FIRST AID MEASURES

General advice :
Remove contaminated, soaked clothing immediately and dispose of safely.

Eye contact :
Immediately rinse with running water for at least 15 minutes. Seek medical advice.

Skin contact :
Remove all contaminated clothing, shoes and socks from the affected area. Immediately rinse with running water. Wash skin thoroughly with soap and water. If irritation persists, seek medical advice.

Inhalation :
If respiratory discomfort occurs, move the person to fresh air. If not breathing, give mouth-to-mouth resuscitation (or an artificial respiration). Keep warm with blanket and keep at rest. Seek emergency medical advice.

Ingestion :
Rinse mouth with water. Do not induce vomiting. Seek medical advice immediately. Do not give anything by mouth to an unconscious person.

Note to physician :
This material contains light hydrocarbon liquid and an aspiration hazard may exist. Treatment is symptomatic and supportive. In the event of a mouthful or more being ingested, gastric lavage with charcoal should be considered.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water, foam, dry chemicals or carbon dioxide (CO_2)
Extinguishing media which must not be used for safety reasons	:	High volume water jet
Special exposure hazards	:	Combustion can form carbon monoxide, nitrogen oxides and hydrogen chloride.
Special protective equipment for fire-fighter	:	Use self-contained breathing apparatus and protective clothing
Further information	:	Move away this product from fire if there is no risk. Use water spray or fog nozzle to keep containers or surrounding area cool. Fight fire from upwind position.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Wear suitable protective clothing, shoes, gloves and goggle. Avoid contact with spilled product or contaminated surfaces.
Environmental precautions	:	Keep unauthorized persons, children and animals away from the affected area. Prevent spillage from entering the drainage systems or watercourses.
Methods for cleaning up	:	Prevent further waste by closing the container properly, shifting its position to stop leakage or placing into another container. Carefully sweep up and collect the spilled material by inert absorbent material (sand, vermiculite, or sawdust) and place in a closed container (drum) for disposal. Remove (large quantities) with vacuum truck. Wash affected area with water containing detergent.

6. ACCIDENTAL RELEASE MEASURES (continued)

Further information	:	See section 7 for safe handling. See section 8 for personnel protective equipment. See section 13 for waste disposal.

7. HANDLING AND STORAGE

Handling

No specific precautions required when handling unopened packs/containers. Provide good ventilation of working area (local exhaust ventilation if necessary). Protect containers against physical damage.
Wear suitable protective clothing, shoes, gloves and goggle during handling.
Do not eat, drink, or smoke during the work.
This product is flammable. Keep away from source of ignition. Vapor may form explosive mixture with air.
Prevent spillage from entering the drainage systems or watercourses.

Storage

Keep tightly closed in original labeled container. Keep away from heat and open flame.
Keep away from direct sunlight. Keep away from direct contact with water.
Protect against frost.
Keep away from the reach of children. Keep away from foods, drinks and animal feeding stuffs.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure limit values	:	Not established for this product. (aromatic hydrocarbon in this product: TWA 100 mg/m^3 (19 ppm))

Exposure controls / Occupational exposure controls

Respiratory protection	:	Filter apparatus (a half face filter mask, filter type A)
Hand protection	:	Chemical resistant gloves, nitril gloves
Eye protection	:	Chemical resistant glasses or goggles
Skin/body protection	:	Impervious clothing such as gloves, apron or PVC boots
Hygiene measures	:	Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Work in an adequately ventilated room.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Brownish oily clear liquid
Odour	:	aromatic
pH	:	7.8 (1% aqueous dispersion)
Flash point	:	53°C
Auto-ignition temperature	:	440°C
Explosive properties	:	Not explosive
Oxidising properties	:	Not oxidising
Explosion limit	:	Between 0.8 and 7 vol% (in air) (data of the solvent)
Vapour pressure	:	0.278 kPa at 20°C (data of the solvent)
Vapor density	:	1.00 (data of the solvent)
Relative density	:	0.962 g/ml at 20°C
Partition coefficient	:	Log Pow 4.61 at 23 °C (n-octanol/water) (quizalofop-P-ethyl)
Viscosity	:	Not available
Other information	:	This product is flammable.

10. STABILITY AND REACTIVITY

Conditions to avoid
Stable under normal storage conditions. Avoid high temperatures.

Materials to avoid
May react with strong bases, acids or strong oxidizing agents, such as chlorates, nitrates, peroxides.

Hazardous decomposition products
No hazardous reactions when stored and handled according to recommendation.
Stable under normal storage conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity LD50 (rat)	: 2,551/2,728	mg/kg (M/F)
Acute oral toxicity LD50 (mice)	: 3,668/4,940	mg/kg (M/F)
Acute dermal toxicity LD50 (rat)	: > 2000	mg/kg (M/F)
Inhalation LC50 (rat)	: 2.91 mg/L	(R20)
Skin irritation	: irritation	(R38)
Eye irritation	: irritation	(R41)
Sensitization	: moderate skin sensitization (R43)	

The following is data of the active ingredient, quizalofop-P-ethyl.

Quizalofop-P-ethyl

Oral LD_{50} (rats)	:	1,210/1,182	mg/kg (M/F)
Dermal LD_{50} (rats)	:	>5,000	mg/kg (based on the racemate)
Inhalation LC_{50} (rats)	:	5.8 mg/L	(based on the racemate)
Eye irritation	:	None	
Skin irritation	:	None	
Skin Sensitization	:	None	
Chronic (2-Year) NOEL (rats)	:	0.9/1.1 mg/kg/day (M/F) (based on the racemate)	
		No carcinogen (based on the racemate)	
Mutagenicity	:	Negative	

12. ECOLOGICAL INFORMATION

Fish (Rainbow trout)	LC_{50} (96 h)	:	5.8 mg/L
Daphnia magna	EC_{50} (48 h)	:	8.0 mg/L
Algae	EC_{50} (72 h)	:	1.27 mg/L

The following is data of the active ingredient, quizalofop-P-ethyl.

Bird (Mallard duck)	LD_{50}	:	>2,000 mg/kg
Bee	LD_{50} (Oral/Contact)	:	>100 μg/bee

13. DISPOSAL CONSIDERATIONS

This product, Targa Super 5EC, is toxic to fish and wildlife. Do not contaminate waterways by cleaning of equipment or disposal of wastes. Untreated effluent should not be discharged where it will drain into lakes, streams, or ponds.
Wastes resulting from manufacture and formulation that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or incinerator in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

Those directly responsible for transport must know what their loads contain, and what action must be taken in the event of emergency.
Special care must be taken during loading and unloading to prevent damage to containers.
This product must not be loaded with food or feed. Follow all applicable regulations.

IMDG

UN No.	:	1993
Class	:	3
Packaging Group	:	III
Ems	:	3-07
Hazard Label	:	Flammable Liquid (H)
Marine Pollutant Label	:	Marine Pollutant
Proper Shipping Name	:	Flammable Liquid n.o.s. (quizalofop-P-ethyl 5%/aromatic hydrocarbon)

ICAO/IATA

UN No.	:	1993
Class	:	3
Packaging Group	:	III
Proper Shipping Name	:	Flammable Liquid n.o.s. (quizalofop-P-ethyl 5%/aromatic hydrocarbon)

ADR/RID

UN No.	:	1993
Class	:	3
Packaging Group	:	III
Hazard No.	:	30
Proper Shipping Name	:	UN 1993 Flammable Liquid n.o.s. (quizalofop-P-ethyl 5%/aromatic hydrocarbon)

ADNR

UN No.	:	1993
Class	:	3
Packaging Group	:	III
Proper Shipping Name	:	UN 1993 Flammable Liquid n.o.s. (quizalofop-P-ethyl 5%/aromatic hydrocarbon)

15. REGULATORY INFORMATION

People use this material must follow all applicable federal, state, and local regulations.
This product is classified and labeled in accordance with the European Union Directive on dangerous preparations 1999/45/EC as amended.

Hazardous components : Quizalofop-P-ethyl and aromatic hydrocarbon

Danger symbol	Xn : Harmful Xi : Irritant N : Dangerous for the environment
R-phrases	R10 : Flammable. R20 : Harmful by inhalation. R38 : Irritating to skin. R41 : Risk of serious damage to eyes. R43 : May cause sensitisation by skin contact. R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 : Harmful: may cause lung damage if swallowed. R67 : Vapors may cause drowsiness and dizziness.

15. REGULATORY INFORMATION (Continued)

S-phrases	S2 : Keep out of the reach of children. S13 : Keep away from food, drink and animal feedingstuffs S24 : Avoid contact with skin S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Avoid contact with skin and eyes S35 : This material and container must be disposed of in a safe way. S37/39 : Wear suitable gloves and eye/face protection. S57 : Use appropriate containment to avoid environmental contamination. S62 : If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. Remark: S2 and S13 are included if they are standard phrases for plant protection products in certain countries.

Further information : WHO Classification: III (slightly hazardous)

16. OTHER INFORMATION

Text of Symbols and Risk Phrases mentioned in section 2:

Xn :	Harmful
Xi :	Irritant
N :	Dangerous for the environment
R10 :	Flammable.
R22 :	Harmful if swallowed.
R37 :	Irritating to respiratory system.
R50/53 :	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53 :	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65 :	Harmful: may cause lung damage if swallowed.
R66 :	Repeated exposure may cause skin dryness or cracking.
R67 :	Vapors may cause drowsiness and dizziness.

This Material Safety Data Sheet is prepared in accordance with Commission Directive 2001/58/EC.
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