SAFETY DATA SHEET

Section 1: IDENTIFICATION

Product Name:	**KARATE ZEON**
Design Code:	A12871F / A12871Q
Recommended Use:	**Insecticide**
Company Details:	**Syngenta Crop Protection Limited**
Address:	**Tower II, Level 7, 110 Symonds Street** **Private Bag 92618,** **Symonds Street** **AUCKLAND** **NEW ZEALAND**
Telephone number:	**(weekdays) 09 306 1500**
Emergency Telephone number:	**(24 Hours) 0800 734 607**
National Poisons & Hazchem Information Centre :	**0800 POISON (0800 764 766)**

Section 2: HAZARDS IDENTIFICATION

Hazard classification:	6.1C, 6.3B, 6.4A, 6.9A, 9.1A, 9.3B, 9.4A
Priority Identifier:	DANGER KEEP OUT OF REACH OF CHILDREN
Secondary Identifiers:	6.1C = Toxic if swallowed, inhaled or absorbed through the skin. 6.3B = May cause skin irritation. Skin contact may cause a temporary sensation of the skin, such as numbness, tingling, pricking, burning or creeping of the skin. 6.4A = Causes serious eye irritation 6.9A = May cause neurotoxicity and lung damage from repeated oral and inhalation exposure at high doses. 9.1A = Very toxic to aquatic life. 9.3B = Toxic to terrestrial vertebrates. 9.4A = Very toxic to terrestrial invertebrates.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Mixture:
Chemical Identity of ingredients:

Ingredient	CAS no.	Content (%w/w)
Lambda-cyhalothrin	91465-08-6	25
Solvent naphta (petroleum), highly arom.	64742-94-5	>=10-<20
Titanium dioxide	13463-67-7	>=1-<5
12-hydroxyoctadecanoic acid, homopolymer	58128-22-6	>=1-<5
Sulfuric acid	7664-93-9	>=1-<5
1,2-benzisothiazol-3(2H)-one	2634-33-5	0.05-<1
Naphthalene	91-20-3	<1
other ingredients determined not to be hazardous	-	to 100%

Section 4: FIRST AID MEASURES

Description of First Aid measures:

General Advice:	For advice contact the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth to nose rather than mouth to mouth. Obtain medical attention.

If inhaled:	Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a Doctor or the National Poisons Centre immediately.
In case of skin contact:	Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a doctor. Wash contaminated clothing before re-use.
In case of eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at leas 15 minutes. Remove contact lenses (if present). Immediate medical attention is required.
If swallowed:	If swallowed seek medical advice immediately and show the container or label. DO NOT induce vomiting.
Important symptoms and effects, both acute and delayed:	
Symptoms:	Aspiration may cause pulmonary oedema and pneumonitis. Skin contact paraesthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours.
Indication of any immediate medical attention and special treatment needed:	
Treatment:	Do no induce vomiting: contains petroleum distillates and/or aromatic solvents. Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

Extinguishing media:	
Suitable extinguishing media:	Small fires: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Large Fires: Alcohol resistant foam or water spray.
Unsuitable extinguishing media:	Do not use a solid water stream as it may scatter and spread fire.
Special hazards arising from the substance or mixture:	
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.
Advice for firefighters:	
Special protective equipment for firefighters:	Wear full protective clothing and 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.

Section 6: ACCIDENTIAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	
	Refer to protective measures listed in Sections 7 and 8. Avoid dust formation.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and material for containment and cleaning up:

Contain spillage, and then collect with non-combustible absorbent material, (eg, sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local regulations (see section 13).

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

Reference to other sections: Refer to disposal considerations listed in Section 13.
Refer to protective measures listed in sections 7 and 8.

Section 7: HANDLING AND STORAGE

Precautions for Safe handling:

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

Conditions for safe storage, including any incompatibilities:

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 reach of children. Keep away from food, drink and animal feeding stuffs.

Specific end use(s)

Specific use(s) For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits:

Components	CAS No	Exposure limit	Type of exposure limit	Source
Lambda-cyhalothrin	91465-08-6	0.04 mg/m^3 (skin)	8 h TWA	Syngenta
Solvent naphtha (petroleum), highly arom	64742-94-5	100 mg/m^3	8 h TWA	Supplier
Titanium dioxide	13463-67-7	10 mg/m^3	8 h TWA	WES
Ammonia, anhydrous	7664-41-7	25 ppm 17 mg/m^3	TWA	WES
Ammonia, anhydrous	7664-41-7	35 ppm 24 mg/m^3	STEL	WES

Exposure controls

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 Protection:

Eye protection:	Eye protection is not usually required. Follow any site specific eye protection policies.
Hand protection:	
Material:	Chemical resistant gloves, such as nitrile rubber
Break through time:	>480 min
Glove thickness:	0.5 mm
Remarks:	Chemical resistant gloves should be used. Gloves should be certified to an appropriate standard. Gloves should have a minimum breakthrough time that is appropriate to the duration of the exposure. The breakthough time of gloves varies according to the thickness, material and manufacturer. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin and body protection:	Assess the exposure and select chemical resistant clothing based on the potential for contact and the permeation / penetration characteristics of the clothing material. Wash with soap and water after removing protective clothing. Decontaminate clothing before re-use or use disposable equipment (suits, aprons, sleeves, boots, etc). Wear as appropriate: Impervious protective suit.
Respiratory protection:	A combination gas, vapour and particulate respirator may be necessary until effective technical measures are installed. Protection provided by air-purifying respirators is limited. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.
Protective measures:	The use 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.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:	
Appearance:	Liquid
Colour:	Off-white to beige
Odour:	Faint hyrocarbon
Odour threshold:	No data
pH value	4-8, concentration: 1% w/v
Melting point / freezing point:	No data
Initial boiling point and boiling range:	No data
Flash point:	>101°C at 100.3 kPa Pensky-Martens c.c.
Flammability:	No data
Upper / lower flammability / explosive limits:	No data
Vapour pressure:	No data
Vapour Density:	No data
Density:	1.094 - 1.098 g/mL
Solubility:	No data
Partition co-efficient: n-octanol / water:	No data
Autoignition temperature	570°C
Decomposition temperature:	No data
Dynamic viscosity:	77.2-149 mPa.s (40°C) 108-207 mPa.s (20°C)
Explosive properties:	Not explosive
Oxidising properties:	Not oxidising
Surface tension:	59.6 mN/m at 20°C

50.8 mN/m at 20°C 42.8 mN/m at 20°C

Section 10: STABILITY AND REACTIVITY

Reactivity:
See Section: "Possibility of Hazardous Reactions".

Chemical Stability:
The product is stable when used in normal conditions.

Possibility of Hazardous Reactions:
No hazardous reactions by normal handling and storage according to provisions.

Conditions to Avoid
No decomposition if used as directed.

Incompatible Materials:
No substances are known which lead to the formation of hazardous substances or thermal reactions.

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

Section 11: TOXICOLOGICAL INFORMATION

HSNO Classifications:

6.1C = Toxic if swallowed, inhaled or absorbed through the skin.
6.3B = May cause skin irritation. Skin contact may cause a temporary sensation of the skin, such as numbness, tingling, pricking, burning or creeping of the skin.
6.4A = Causes serious eye irritation
6.9A = May cause neurotoxicity and lung damage from repeated oral and inhalation exposure at high doses.

Acute toxicity *(similar composition)*		
Swallowed:	LD_{50}	=180 mg/kg (rat, female)
	LD_{50}	=245 mg/kg (rat, male)
Dermal absorption:	LD_{50}	>2000 mg/kg (rat)
Inhaled:	LC_{50} (4 h)	=>2.60-<4.52mg/L (rat)
Aspiration hazard:	**Not classified**	
Respiratory irritation:	**Not classified**	
Skin corrosion / irritation:	**IRRITANT** (rabbit/HSNO Classification)	
Eye damage / irritation:	**IRRITANT** (rabbit/HSNO Classification)	
Respiratory or Skin Sensitisation:	**NOT A SENSITISER** (skin - guinea pig/HSNO Classification)	

Chronic / Long Term Effects *(active ingredient)*	
Germ cell mutagenicity:	Animal testing did not show any mutagenic effects.
Carcinogenicity:	No evidence of carcinogenicity in animal studies.
Reproductive toxicity:	No toxicity to reproduction.
Specific Organ toxicity:	*Single exposure:* The substance or mixture is not classified as specific target organ toxicant, single exposure. *Repeated exposure:* The substance or mixture is classified as specific target organ toxicant, repeated exposure, Class 6.9A – neurotoxicity and lung damage from repeated oral exposure and inhalation at high doses.
Narcotic Effects:	Not classified

Section 12: ECOLOGICAL INFORMATION

HSNO Classifications:

9.1A = Very toxic to aquatic life.
9.3B = Toxic to terrestrial vertebrates.
9.4A = Very toxic to terrestrial invertebrates.

Ecotoxicity Effects – aquatic (product)	
Acute toxicity to fish:	LC_{50} (96 h) = 0.00761 mg/L (*Onchorhynchus mykiss* [rainbow trout])
Toxicity to daphnia and other aquatic invertebrates:	EC_{50} (48h) = 0.00746 mg/L (*Daphnia magna* (water flea))
Toxicity to algae:	E_rC_{50} (96 h) = 5.92 mg/L (*Pseudokirchneriella subcapitata* [green algae]) E_bC_{50} (96 h) = 2.07 mg/L (*Pseudokirchneriella subcapitata* [green algae])
Ecotoxicity Effects – terrestrial (active ingredient unless otherwise specified)	
Toxicity to Birds:	LD_{50} = >3950 mg/kg (mallard duck)
Toxicity to soil dwelling organisms:	LC_{50} (14 days) = >1000 mg/kg (earthworms)
Toxicity to Bees:	Product: LD_{50} 48h (contact) = 0.160 µg/bee Product: LD_{50} 48h (oral) = 1.112: µg/bee
Persistence and degradability:	
Biodegradability:	Not readily biodegradable
Stability in water:	Degradation half-life: 7 d Not persistent in water.
Bioaccumulative potential:	
Bioaccumulation:	Lambda-cyhalothrin bioaccumulates
Mobility in soil:	
Distribution among environmental compartments:	Immobile
Stability in soil:	Not persistent in soil.
Other adverse effects:	
Results of PBT and vPvB assessment (product):	This substance contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Section 13: DISPOSAL CONSIDERATIONS

Product Disposal:	DO NOT contaminate ponds, waterways or ditches with chemical or used containers. DO NOT dispose of waste into sewer. Dispose of this product only by using according to the label. Otherwise, dispose of waste at an approved landfill or other approved facility that will ensure the substance does not exceed the tolerable exposure limit (TEL) or environmental exposure limit (EEL), where relevant, or will treat the substance so that it is rendered no longer hazardous.
Container Disposal:	Ensure the container is empty. Triple rinse empty container and add rinsate to the spray tank. Recycle empty container through Agrecovery (0800 247 326, www.agrecovery.co.nz). Otherwise crush and bury in a suitable landfill. DO NOT reuse this container for any other purpose.

Section 14: TRANSPORT INFORMATION

Rail / Road (NZS 5433)	UN-No:	3352
	Class:	6
	Packing Group:	III
	Proper shipping name:	PYRETHROID PESTICIDE, LIQUID, TOXIC (Lambda-cyhalothrin)

Sea (IMDG-Code)	UN-No:	3352
	Class:	6
	Packing Group:	III
	Proper shipping name:	PYRETHROID PESTICIDE, LIQUID, TOXIC (Lambda-cyhalothrin)
	EmS Code:	F-A, S-A
	MARINE POLLUTANT:	Yes
Air (IATA)	UN-No:	3352
	Class:	6
	Packing Group:	III
	Proper shipping name:	PYRETHROID PESTICIDE, LIQUID, TOXIC (Lambda-cyhalothrin)
	Packing instruction:	655 passenger 663 cargo
	Packing instruction (LQ)	Y964 cargo and passenger

Section 15: REGULATORY INFORMATION

HSNO Approval Number:	HSR000336
Tolerable Exposure Limit or Environmental Exposure Limit:	None set at this time.
Required Regulatory Controls:	
Certified handler:	No
Tracking:	No
Record Keeping:	Yes, 9.1A and 9.4A substance
ACVM Registration:	P 3495
ACVM Controls:	See www.foodsafety.govt.nz/industry/acvm for registration conditions.
International Agreements related to the substance (eg, Montreal Protocol, Stockholm Convention or Rotterdam Convention):	

Section 16: OTHER INFORMATION

Date of SDS Preparation / Review:	3 February 2020
Version number of SDS:	6

Key / Legend to abbreviations and acronyms used:

AICS - Australian Inventory of Chemical Substances;
ANTT - National Agency for Transport by Land of Brazil;
ASTM - American Society for the Testing of Materials;
bw - Body weight;
CMR -Carcinogen, Mutagen or Reproductive Toxicant;
CPR - Controlled Products Regulations;
DIN - Standard of the German Institute for Standardisation;
DSL - Domestic Substances List (Canada);
ECx - Concentration associated with x% response;
ELx - Loading rate associated with x% response;
EmS - Emergency Schedule;
ENCS - Existing and New Chemical Substances (Japan);
ErCx - Concentration associated with x% growth rate response;
ERG - Emergency Response Guide;
GHS - Globally Harmonized System;
GLP - Good Laboratory Practice;
IARC - International Agency for Research on Cancer;
MARPOL - International Convention for the Prevention of Pollution from Ships;
n.o.s. - Not Otherwise Specified;
Nch - Chilean Norm;
NO(A)EC - No Observed (Adverse) Effect Concentration;
NO(A)EL - No Observed (Adverse) Effect Level;
NOELR - No Observable Effect Loading Rate;
NOM - Official Mexican Norm;
NTP - National Toxicology Program;
NZIoC - New Zealand Inventory of Chemicals;
OECD - Organization for Economic Co-operation and Development;
OPPTS - Office of Chemical Safety and Pollution Prevention;
PBT - Persistent, Bioaccumulative and Toxic substance;
PICCS - Philippines Inventory of Chemicals and Chemical Substances;
(Q)SAR - (Quantitative) Structure ActivityRelationship;
REACH - Regulation (EC) No 1907/2006 of the European

IATA - International Air Transport Association;
IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;
IC50 - Half maximal inhibitory concentration;
ICAO - International Civil Aviation Organization;
IECSC - Inventory of Existing Chemical Substances in China;
IMDG - International Maritime Dangerous Goods;
IMO - International Maritime Organization;
ISHL - Industrial Safety and Health Law (Japan);
ISO - International Organisation for Standardization;
KECI - Korea Existing Chemicals Inventory;
LC50 - Lethal Concentration to 50 % of a test population;
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose);
Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals;
SADT - Self-Accelerating Decomposition Temperature;
SDS - Safety Data Sheet;
TCSI - Taiwan Chemical Substance Inventory;
TDG - Transportation of Dangerous Goods;
TSCA - Toxic Substances Control Act (United States);
UN - United Nations;
UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods;
vPvB - Very Persistent and Very Bioaccumulative;
WES – Workplace Exposure Standard (Worksafe NZ)
WHMIS - Workplace Hazardous Materials Information System

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 test.

This version replaces all previous versions.