SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product Name: **Kontrol 4 – 4**
Description: Synthetic Pyrethroid Insecticide and Synergist
EPA Reg. No: 73748-4

Company Name and Address:
Univar Environmental Sciences
11305 Four points Drive
Bldg. 1, Suite 210
Austin, Texas 78726

Emergency Response Telephone Numbers

For Spills Call:	1-(800)-424-9300
For Medical Emergencies Call:	1-(866)-674-4334
For Other Emergencies Call:	1-(952)-653-3523

SECTION 2: HAZARD IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

WARNING
Harmful if swallowed, inhaled or absorbed through the skin.
Causes moderate eye irritation.
May cause moderate skin irritation with prolonged or repeated contact.
May cause allergic skin reactions
May be harmful if swallowed and enters airways.
Toxic to aquatic organisms, including fish and aquatic invertebrates.
Toxic to bees exposed to direct treatment on blooming crops or weeds.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS:	**(% w/w)**
Permethrin (CAS Reg. No. 52645-53-1) (3-phenoxyphenyl) methyl (±) cis, trans-3-(2,2-dichloroethenyl) -2,2-dimethylcyclopropane carboxylate [1]	4.6%
Piperonyl Butoxide (CAS Reg. No. 51-03-6) Equivalent to 80% (butylcarbityl)(6-propylpiperonyl) ether And 20% related compounds	4.6%
Inert Ingredients [2]	90.8%

[1] *cis/trans* ratio: minimum 35% (±) *cis* and maximum 65% *trans*
[2] Petroleum distillate solvent (CAS No. 64741-89-5).

SECTION 4: FIRST AID MEASURES

First Aid	
If in Eyes:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If on Skin or Clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice.
If Swallowed:	Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.
If Inhaled:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For information on this product, contact the National Pesticide Information Center at 1-800-858-7378. You may also contact the National Poison Control Center, 1-800-222-1222 for emergency medical treatment information.	

Note to Physician: Contains petroleum distillate – vomiting may cause aspiration pneumonia.

SECTION 5: FIRE-FIGHTING MEASURES

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category	Rating
Health	1
Flammability	1
Reactivity	0

Flash Point: > 230° F (110° C)

Method Used: TCC

Extinguishing Media: Foam, CO_2, or dry chemical is preferred. Soft stream water fog only if necessary

Fire & Explosion Precautions: Foam fire-extinguishing system is preferred because uncontrolled water can spread possible contamination. Do not allow fire-fighting water to escape into waterways or sewers. Toxic irritating gases can be formed.

Fire-Fighting Equipment:	Use positive-pressure self-contained breathing apparatus and full protective equipment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPILLS OR LEAKS: Wear protective clothing as described in Section 8 of this SDS. Absorb liquid with material such as clay, sand, sawdust, or dirt. Sweep up and place in a suitable container for disposal and label the contents. Area can be washed down with a suitable solution of bleach or soda ash and an appropriate alcohol (methanol, ethanol, or isopropanol). Follow this by washing with a strong soap and water solution. Absorb any excess liquid as indicated above, and add to the disposal container. Keep product, contaminated materials and wash water out of streams and sewers. Wash exposed body areas thoroughly after handling.

SECTION 7: HANDLING AND STORAGE

Keep out of reach of children. Do not contaminate water, food or feed by storage or disposal. Do not use, pour, spill or store near heat or open flame.

HANDLING: Wear proper safety equipment specified in Section 8 when mixing, loading or otherwise handling this product.

STORAGE: Keep this product in its tightly closed original container when not in use. Store in a cool, dry (preferably locked) area that is designated for such insecticides and also inaccessible to children and animals. Avoid exposure to extreme temperatures. In case of spillage, soak up with absorbent material, such as sawdust or fullers' earth, sweep up and place in a labeled container and dispose of as directed in Section 13.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINE(S):

MATERIAL:		OSHA PEL	ACGIH TLV
Active Ingredients:	Permethrin	Not established	Not established
	Piperonyl Butoxide	Not established	Not established
Inert Ingredient:	Petroleum Distillate	5 mg/m^3 (oil mist)	5 mg/m^3 (oil mist)

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline. Ventilate all transport vehicles prior to unloading.

PERSONAL PROTECTIVE EQUIPMENT:
Mixers, loaders, applicators, and other handlers must wear: Long-sleeve shirt; long pants; shoes and socks; chemical-resistant gloves for all handlers except for applicators using motorized ground equipment,

pilots and flaggers; and Chemical-resistant apron for mixers/loaders, persons cleaning equipment, and persons exposed to the concentrate.

See engineering controls for additional information.

User Safety Requirements:
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

User Safety Recommendations:

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Engineering Controls
Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticide [40 CFR §170.240(d)(6)].

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Color:	Light yellow
Physical State:	Liquid
Odor:	Slight odor of petroleum oil
Density:	7.27 lbs/gal (0.87 gm/cm^3)
Solubility:	Does not disperse in water
Viscosity:	60 cps
pH:	Not applicable - does not disperse with water
Stability:	Stable

SECTION 10: STABILITY AND REACTIVITY

Stability:	(CONDITIONS TO AVOID) Avoid heating above 230° F 110° C). Contains a petroleum distillate solvent which can burn.
Incompatibility:	(SPECIFIC MATERIALS TO AVOID) Strong Oxidizers.

Hazardous Decomposition:	Under fire conditions hydrogen chloride, oxides of chlorine, carbon dioxide, carbon monoxide, and asphyxiants can be formed.
Hazardous Polymerization:	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

SKIN ABSORPTION: The acute dermal toxicity is considered to be low. The dermal LD_{50} for rabbits is greater than 2000 mg/kg.

INGESTION: The acute oral toxicity is considered to be low. The oral LD_{50} for rats is greater than 1000 mg/kg. Small amounts that might be swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. If aspirated (liquid enters the lungs), may cause lung damage or even death due to chemical pneumonia.

INHALATION: The acute inhalation toxicity is considered to be low. The inhalation LC_{50} for rats is greater than 4 mg/l for 4 hours. Symptoms of excessive exposure includes squinting eyes, irregular and rattled breathing, ataxia, headache, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Excessive exposure may produce effects on the nervous system such as sensitivity to touch and sound, tremors, abnormal movement, and clonic convulsions. Long-term studies with permethrin in laboratory animal resulted in increased liver and kidney weights, induction of the liver microsomal drug metabolizing enzyme system, and histopathological changes in the lungs and liver. Long-term studies with piperonyl butoxide indicated increased organ weights in the liver, kidney, and adrenal glands.

CANCER INFORMATION: Chronic feeding studies with permethrin in mice and rats indicate limited evidence of oncogenicity in laboratory animals. Based on comprehensive evaluations of all relevant health effects data, it was concluded that the oncogenic potential in humans is extremely weak or nonexistent. A chronic feeding study in mice indicate an increased incidence of benign liver tumors; the significance of these findings is questionable and under review. The doses that produced this oncogenic effect in laboratory animals, greatly exceeds human exposure levels for the recommended use of this product.

TERATOLOGY (BIRTH DEFECTS): The active ingredients in this product did not cause birth defects in laboratory animal studies. Exposures having no effect on the mothers had no effect on the fetuses in rabbits and rats. The no-effect levels for permethrin in rabbits and rats were 600 mg/kg and 50 mg/kg, respectively. The no-effect levels for piperonyl butoxide in rabbits and rats were 200 mg/kg and 1000 mg/kg, respectively.

REPRODUCTIVE EFFECTS: Permethrin and piperonyl butoxide did not interfere with fertility in animal reproduction studies. The no effect level for permethrin in a two-generation rat reproduction study was 180 mg/kg. The no-effect level for piperonyl butoxide in a two-generation rat reproduction study was 350 mg/kg.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Based on a number of *in vivo* and *in vitro* studies, it was concluded that the active ingredients in this product are not mutagenic.

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL SUMMARY: This pesticide is extremely toxic to aquatic organisms, including fish and aquatic invertebrates. Run-off from treated areas or deposition of spray droplets into a body of water may be hazardous to fish and aquatic invertebrates. Before making the first application in a season, it is advisable to consult with the state or tribal agency with primary responsibility for pesticide regulation to determine if other regulatory requirements exist.

Do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body.

This pesticide is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift on blooming crops or weeds while bees are actively visiting the treatment areas, except when applications are made to prevent or control a threat to public and/or animal health determined by a state, tribal or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

PHYSICAL ENVIRONMENTAL PROPERTIES: In soil, permethrin is stable over a wide range of pH values. Due to its high affinity for organic matter, (K_{oc} = 86,000), there is little potential for movement in soil or entry into ground water. Permethrin has a Log P_{OW} of 6.1, but a low potential to bioconcentrate (BCF = 500) due to the ease with which it is metabolized. Piperonyl butoxide is reported to have a maximum half-life of 4.3 days in soil and from 0.55 to 1.64 days in aqueous environments. Gravitational settling remove piperonyl butoxide released in the atmosphere as an aerosol. Gaseous piperonyl butoxide degrades in the atmosphere with an estimated half-life of 3.4 hours. It is reported that piperonyl butoxide has a low potential for environmental bioconcentration.

ENVIRONMENTAL TOXICOLOGY: Permethrin is highly toxic to fish (LC_{50} = 0.5 µg/L to 315 µg/L) and aquatic invertebrates (LC_{50} = 0.02 µg/L to 7.6 µg/L). Marine species are often more sensitive than the freshwater species. Bacteria, algae, mollusks, and amphibians are much more tolerant of

permethrin than the fish and arthropods. Care should be taken to avoid contamination of the aquatic environment. Permethrin is slightly toxic to birds and oral LD_{50} values are greater than 3,600 mg/kg. Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effect on bird reproduction. Piperonyl butoxide is acutely toxic to fish (LC_{50} = 3.94 mg/L to 6.12 mg/L) and highly toxic to aquatic invertebrates (LC_{50} 0.23 mg/L to 0.51 mg/L). Care should be taken to avoid contamination of aquatic environments. Piperonyl butoxide has a low to very low toxicity to birds with an acute oral LD_{50} greater than 2,250 mg/kg and longer-term dietary studies at LC_{50} values greater than 5,620 ppm.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not contaminate water, food or feed by storage or disposal.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Handling: Nonrefillable Container: Metal or Plastic Container. Do not reuse or refill container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Offer for recycling, if available, reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Triple rinse as follows:
Containers 5 gallons or less: Empty the remaining contents into application equipment and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Once cleaned, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities. Do not cut or weld metal containers.
Containers larger than 5 gallons: Empty the remaining contents into application equipment. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Once cleaned, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities.
Pressure rinse as follows (all sizes): Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.
Refillable container: Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.
Return container to point of purchase for reuse with seal intact and in salable condition. Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and

damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

To clean the container before final disposal, empty the remaining contents from the container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing process two more times.

BULK STORAGE AND DISPOSAL
Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.
Storage: Ground water contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.
Pesticide Disposal: Pesticide spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to Federal and local procedures under Subtitle C or the Resource Conservation and Recovery Act.

SECTION 14: TRANSPORTATION INFORMATION

U.S. SURFACE FREIGHT CLASS: Insecticide, NOI, other than Poison. NMFC Item 102120.

MARINE POLLUTANT #1: permethrin (Severe Marine Pollutant).

OTHER SHIPPING INFORMATION: This product is not regulated for transport in the USA when shipped via highway or railroad in non-bulk packages. Describe using the "U.S. Surface Freight Class" above, which applies in all cases.

SPECIAL NOTE: The following applies to water and air shipments, and shipments in bulk packages:

PROPER SHIPPING NAME: Environmentally hazardous substance, liquid, n.o.s. (permethrin)

HAZARD CLASS OR DIVISION: 9

IDENTIFICATION NUMBER: UN 3082

PACKING GROUP: III

OTHER: NAERG Guide 171

SECTION 15: REGULATORY INFORMATION

FIFRA INFORMATION:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject

to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for the workplace labels of non-pesticide chemicals. The following is the hazard information as required on the pesticide label:

> **CAUTION:** Contains petroleum distillate. Causes moderate eye irritation. Harmful if swallowed. Avoid contact with skin, eyes or clothing. Avoid breathing vapors or spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove contaminated clothing and wash before reuse.

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Permethrin	52645-53-1	4.6%
Piperonyl Butoxide	51-03-5	4.6%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Category:

Chemical Name	CAS Number	RQ	% in Product
Permethrin	52645-53-1	not listed	4.6%
Piperonyl Butoxide	51-03-6	not listed	4.6%
Petroleum Distillate	64741-89-5	not listed	90.8%

SECTION 16: OTHER INFORMATION

SDS Date: May 5, 2015

This document is prepared pursuant to the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012. In addition, other substances not "Hazardous" per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state, and local laws and regulations. See SDS for health and safety information.

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Univar USA Inc Safety Data Sheet

3075 Highland Pkwy, Ste 200, Downers Grove, IL 60515
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

Univar USA Inc Safety Data Sheet

For Additional Information contact SDS Coordinator during business hours, Pacific time: (425) 889-3400

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