Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 Reviewed on 10/23/2001

1 Identification of substance

· **Product details**

· **Trade name:** **FRONTLINE® PLUS FOR DOGS**

· **Product number:**
2850, 2851, 2852, 2853, 2860, 2861, 2862, 2863, 2870, 2871, 2872, 2873, 2880, 2881, 2882, 2883

· **Manufacturer/Supplier:**
Merial Limited
2100 Ronson Road
Iselin, NJ 08830-3077
1-888-MERIAL 1 (1-888-637-4251), Option 5

· **Information department:** MSDS Coordinator
· **Emergency information:**
Spill Information:
CHEMTREC® 1-800-424-9300
CHEMTREC® International 1+703-527-3887
Reverse charges.
Health Information: 1-888-637-4251, Option 5

2 Composition/Data on components

· **Chemical characterization**
· **Description:** Mixture: consisting of the following components.

· **Components:**

			%w/v
	Diluent, Viscosity Modifier/Spreading Agent, and Solvation Aids		61-76%
120068-37-3	Fipronil Technical	Xn; R 20/21-36	7-12%
65733-16-6	(S)-Methoprene		7-12%
64-17-5	ethanol	F; R 11	10-15%

· **Additional information:**
R 20: Harmful if in contact with skin
R 21: Harmful by inhalation
R 11: Highly flammable

ADDITIONAL EXPOSURE STANDARDS: Ethanol: OSHA PEL: 1000ppm (1880mg/m3); ACGIH TLV-TWA: 1000ppm (1880 mg/m3)
OSHA REGULATORY STATUS: Hazardous--Flammable

Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 *Reviewed on 10/23/2001*

Trade name: FRONTLINE® PLUS FOR DOGS

3 Hazards identification

· **Hazard description:**

Xn Harmful

· **Information pertaining to particular dangers for man and environment:**
R 10 Flammable.
R 22 Harmful if swallowed.
R 51 Toxic to aquatic organisms.
R 57 Toxic to bees.

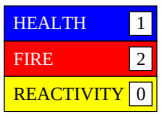
· **Classification system:**
The classification was made according to the latest editions of international substances lists, and from company and regulatory data.

The hazard descriptions of Harmful and Toxic properties refer to hazards possessed by bulk volumes of Technical Fipronil.

· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 2
Reactivity = 0

· **Additional information:**
POTENTIAL HEALTH EFFECTS:
EYE: Not expected to produce significant eye irritation
SKIN: This product may produce mild skin irritation on prolonged contact.
INHALATION: No effects expected from incidental inhaltion of fumes or vapors from this product.
INGESTION: This product is harmful if swallowed in large quantities, and may result in nervous system and respiratory depression, metabolic acidosis, and kidney injury.

CHRONIC EFFECTS: No chronic effects are known.

SIGNS AND SYMPTOMS OF EXPOSURE: Symptoms of ingestion large quantities of this product may include difficulty breathing, fatigue, lethargy and thirst.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

POTENTIAL ENVIRONMENTAL EFFECTS: This formulation, due to the presence of Fipronil, is toxic to aquatic organisms, upland game birds and bees when large quantities are released into the environment. Fipronil degrades slowly in the environment. Other ingredients of this product are not expected to present environmental hazards. Handle and dispose of product in accordance with Sections 6, 7 and 13.

4 First aid measures

· **General information:**
Do not leave affected persons unattended if individual is exposed to large quantities of product.

Material Safety Data Sheet
ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 Reviewed on 10/23/2001

Trade name: FRONTLINE® PLUS FOR DOGS

Involve doctor immediately.
· **After inhalation:** Seek immediate medical advice.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:**
Rinse opened eye for a minimum of 15 minutes under running water. If symptoms occur, consult a doctor.
· **After swallowing:**
Immediately call a doctor.
Induce vomiting, if person is conscious. Seek medical help.

5 Fire fighting measures

· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fire with alcohol resistant foam.
· **Protective equipment:**
Fire fighters should wear self-contained breathing apparatus and full protective equipment.
· **Additional information** These measures refer to incidents involving technical fipronil.

6 Accidental release measures

· **Person-related safety precautions:**
Keep people at a distance and stay upwind.
Wear protective equipment. Keep unprotected persons away.
· **Measures for environmental protection:**
Inform respective authorities in case of seepage of large quantities into water source or sewage system.
In case of seepage of large quantities into the ground inform responsible authorities.
· **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section XIII.
· **Additional information:** These measures refer to incidents involving technical fipronil.

7 Handling and storage

· **Handling:**
· **Information for safe handling:**
Keep containers tightly sealed.
Store in a cool, dry place.
Handle with care. Avoid jolting, friction, and impact.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Provide ventilation for containers.
Store only in the original container.
· **Further information about storage conditions:**
· **Recommended storage temperature:**
< 30°C (86°F)

Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 Reviewed on 10/23/2001

Trade name: FRONTLINE® PLUS FOR DOGS

These measures refer to storage conditions of large quantities of product.

8 Exposure controls and personal protection

· Components with limit values that require monitoring at the workplace:

64-17-5 ethanol

ACGIH TLV	1000 ppm
NIOSH REL	1900 mg/m³, 1000 ppm
OSHA PEL	1900 mg/m³, 1000 ppm
MAK (Germany)	1900 mg/m³, 1000 ppm (DFG)

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs and beverages.
Avoid contact with the eyes and skin.
Wash hands before and after handling.
Do not eat, drink, smoke or sniff.
Do not store food near product.

· Protection of hands:

Not required under normal conditions of use.
When handling product in bulk volumes, protective gloves should be worn.

· Eye protection: Wear eye protection when cleaning large spills.

· Body protection: Wear protective clothing when cleaning large spills.

9 Physical and chemical properties

· Form:	Slightly viscous liquid
· Color:	Light amber colored
· Odor:	No odor
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	78°C (172°F) (CALCULATED)
· Flash point:	36°C (97°F) (MEASURED)
· Ignition temperature:	190.0°C (374°F) (CALCULATED)
· Auto igniting:	Product is not self-igniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol % (CALCULATED)
Upper:	15 Vol % (CALCULATED)
· Specific gravity:	1.020 g/cm³ (MEASURED)
· Solubility in / Miscibility with Water:	Forms a milky white precipitate
· pH-value:	5.2 (MEASURED)

Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 *Reviewed on 10/23/2001*

Trade name: FRONTLINE® PLUS FOR DOGS

· **Viscosity at 25°C (77°F):** 9.73 mm2/s (MEASURED)

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** Avoid exposure to heat, sparks or flame
· **Dangerous reactions** No dangerous reactions known.
· **Dangerous products of decomposition:** None known, other than typical oxides of carbon

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

Oral	LD50	750 mg/kg (rat)
Dermal	LD50	>5000 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** This product may produce mild skin iritation on prolonged contact.
· **on the eye:** No irritating effect known.
· **Sensitization:** No sensitizing effects known.
· **Subacute to chronic toxicity:**
There are no data on the reproductive effects of this mixture. One component of this product produced slight adverse reproductive effects at 2.5% in drinking water. For Fipronil, the No Effect Level (NOEL) for adverse reproductive effects in rats was approximately 2.5 mg/kg-day, with higher doses causing adverse effects.
Ethanol is a known reproductive toxin, with overexposure to bulk volumes during pregnancy associated with numerous adverse effects on the fetus.
Acute and chronic overexposure to bulk volumes of Technical Fipronil produced adverse neurological effects in animals (rabbits), including changes in neuromuscular endpoints and seizures.
· **Additional toxicological information:**
Symptoms of respiratory depression or central nervous system depression (fatigue, lethargy or dizziness) may occur if exposed to bulk volumes of ingredients. This product is a veterinary medicine and should be regarded as harmful if swallowed or absorbed.

12 Ecological information

· **Ecotoxological effects:**

· **Acquatic toxicity:**

120068-37-3 Fipronil Technical	
EC50/48 hours	190 ug/l (daphnia magna)
LC50 / 96hrs	.25 mg/kg (Rainbow Trout)
LC50/8 days	>5000 mg/kg (mal)
65733-16-6 (S)-Methoprene	
LC50 / 96hrs	360 ppb (daphnia magna)

· **Remark:** Components of this product are toxic to aquatic, avian and insect species.
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow bulk volumes of product to reach ground water, water source or sewage system.

Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 *Reviewed on 10/23/2001*

Trade name: FRONTLINE® PLUS FOR DOGS

Also poisonous for fish and plankton in water bodies.

13 Disposal considerations

· **Product:**
· **Recommendation:**
Smaller quantities can be disposed of with household waste.
On the basis of the necessary technical regulations and after consultation with the disposal agent and the relevant authorities, can be disposed of with domestic waste or incinerated with domestic waste.

· **Uncleaned packagings:**
· **Recommendation:** *Disposal must be made according to official regulations.*

14 Transport information

· **DOT regulations:**

· **Hazard class:**	*3*
· **Identification number:**	*UN1170*
· **Packing group:**	*III*
· **Proper shipping name (technical name):**	*Ethanol Solution (Ethyl alcohol solution)*

· **Land transport ADR/RID (cross-border):**

· **ADR/RID class:**	*3 Flammable liquids*
· **Item:**	*31°c*
· **Danger code (Kemler):**	*30*
· **UN-Number:**	*1170*
· **Proper shipping name:**	*Ethanol solution (Ethyl alcohol solution)*

· **Maritime transport IMDG:**

· **IMDG Class:**	*3.3*
· **Page:**	*3337-1*
· **UN Number:**	*1170*
· **Packaging group:**	*III*
· **EMS Number:**	*3-06*
· **MFAG:**	*305*
· **Marine pollutant:**	*No*

Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 Reviewed on 10/23/2001

Trade name: FRONTLINE® PLUS FOR DOGS

· **Proper shipping name:**	Ethanol solution (Ethyl alcohol solution)

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:**	3
· **UN/ID Number:**	1170
· **Packing group:**	III
· **Proper shipping name:**	Ethanol solution (Ethyl alcohol solution)

15 Regulations

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
Components of this product are listed on the inventory.

See section 2.

· **CA Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity:**

None of the ingredients are listed.

· **Product related hazard informations:**
The product has been classified and marked in accordance with directives on hazardous materials.
SARA 312 HAZARD CLASS: Fire, Acute health

· **Hazard symbols:**
Xn Harmful

· **Risk phrases:**
10 Flammable.
22 Harmful if swallowed.
51 Toxic to aquatic organisms.
57 Toxic to bees.

· **Safety phrases:**
13 Keep away from food, drink and animal feedingstuffs.
16 Keep away from sources of ignition - No smoking.
20/21 When using do not eat, drink or smoke.
29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point
46 If swallowed, seek medical advice immediately and show this container or label.

Material Safety Data Sheet

ISO/DIS 11014 / 29 CFR 1910.1200 / ANSI Z400.1

Printing date 10/23/2001 Reviewed on 10/23/2001

Trade name: FRONTLINE® PLUS FOR DOGS

· **Additional classification according to Decree on Hazardous Materials:**
The hazard descriptions of Harmful and Toxic properties refer to hazards possessed by bulk volumes of Technical Fipronil.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

· **Other regulations, limitations and prohibitive regulations**
STATE RIGHT TO KNOW STATUS:

COMPONENT	PENNSYLVANIA	MASSACHUSETTS
ethanol	listed	listed
butylhydroxyanisole	not listed	listed

16 Other information

To the best of our knowledge, the information contained herein is accurate. However, neither Merial or any of its subsidiaries or parents assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, Merial cannot guarantee that these are the only hazards that exist.

· **Department issuing MSDS:** MSDS Coordinator
· **Contact:** MSDS Coordinator, 706-552-2739, msds@merial.com