

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** TROOPER® P + D Herbicide

**EPA Reg. No.:** 228-530

**Synonyms:** Mixture of 2,4-D and Picloram

**Product Type:** Herbicide

**Company Name:** Nufarm Americas Inc.  
150 Harvester Drive, Suite 200  
Burr Ridge, IL 60527

**Telephone Numbers:** For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,  
Call CHEMTREC Day or Night: 1-800-424-9300  
For Medical Emergencies Only, Call 1-877-325-1840

**Date of Issue:** July 25, 2012

**Supersedes:** March 25, 2009

**Sections Revised:** 1, 13

## 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance and Odor:** Clear, light amber colored liquid with a pungent odor.

**Warning Statements:** Keep out of reach of children. WARNING. Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes or on clothing. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.

**Potential Health Effects:**

**Likely Routes of Exposure:** Inhalation, eye and skin contact.

**Eye Contact:** Causes substantial but temporary eye injury. Vapors and mist can cause irritation.

**Skin Contact:** Slightly toxic and minimally irritating based on toxicity studies. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.

**Ingestion:** Harmful if swallowed. May cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms.

**Inhalation:** Low inhalation toxicity.

**Medical Conditions Aggravated by Exposure:** Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

**Potential Environmental Effects:**

This product is toxic to fish and aquatic invertebrates. It is toxic to some plants at very low concentrations. Non-target plants may be adversely affected if pesticide is allowed to drift from areas of application.

See Section 12: ECOLOGICAL INFORMATION for more information.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
2,4-Dichlorophenoxyacetic Acid, Triisopropanolamine Salt	32341-80-3	39.6
Picloram, Triisopropanolamine Salt	6753-47-5	10.2
Other Ingredients Including:		50.2
Isopropanol	67-63-0	

**4. FIRST AID MEASURES**

**If in Eyes:** Hold eye open and rinse slowly and gently with water for 15 to 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 Swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. 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 treatment advice.

**If on Skin or Clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

**5. FIRE FIGHTING MEASURES**

**Flash Point:** >212° F (>100° C) Pensky-Martens

**Autoignition Temperature:** Not determined

**Flammability Limits:** Not determined

**Extinguishing Media:** Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

**Special Fire Fighting Procedures:** Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

**Unusual Fire and Explosion Hazards:** If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

**Hazardous Decomposition Materials (Under Fire Conditions):** May produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

**National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product: Health: 2    Flammability: 1    Reactivity: 0**

Hazards Scale: 0 = Minimal    1 = Slight    2 = Moderate    3 = Serious    4 = Severe

**6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions:** Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

**Environmental Precautions:** Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

**Methods for Containment:** Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

**Methods for Cleanup and Disposal:** Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

**Other Information:** Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

**7. HANDLING AND STORAGE**

**Handling:**

Do not get in eyes or on clothing. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals. Users should wash hands before eating, drinking, chewing gum, using

tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**Storage:**

If exposed to subfreezing temperatures (below 32° F), the product should be warmed to at least 40° F and agitated thoroughly before using. Do not contaminate water, food or feed by storage or disposal.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Engineering Controls:**

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

**Personal Protective Equipment:**

**Eye/Face Protection:** To avoid contact with eyes, wear face shield, goggles or safety glasses with front, brow and temple protection. An emergency eyewash or water supply should be readily accessible to the work area.

**Skin Protection:** To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. When open pouring the product, also wear coveralls or a chemical-resistant apron. An emergency shower or water supply should be readily accessible to the work area.

**Respiratory Protection:** Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

**General Hygiene Considerations:** Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

**Exposure Guidelines:**

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
TIPA Salt of 2,4-D	10*	NE	10*	NE	mg/m <sup>3</sup>
Picloram Acid	15 (T) 5 (R)	NE	10	NE	mg/m <sup>3</sup>
Isopropanol	400	NE	200	400	ppm

\*Based on adopted limit for 2,4-D Acid  
T = Total Dust

NE = Not Established  
R = Respirable Fraction

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance and Odor:** Clear, light amber colored liquid with a pungent odor.

<b>Boiling Point:</b>	Not determined	<b>Solubility in Water:</b>	Miscible
<b>Density:</b>	9.68 pounds/gallon	<b>Specific Gravity:</b>	1.162 @ 20° C
<b>Evaporation Rate:</b>	Not determined	<b>Vapor Density:</b>	Not determined
<b>Freezing Point:</b>	Not determined	<b>Vapor Pressure:</b>	Not determined
<b>pH:</b>	6.90 (1% w/w solution)	<b>Viscosity:</b>	25.080 cSt @ 20° C

**Note:** Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

**10. STABILITY AND REACTIVITY**

**Chemical Stability:** This material is stable under normal handling and storage conditions.  
**Conditions to Avoid:** Excessive heat. Do not store near heat or flame.  
**Incompatible Materials:** Strong oxidizing agents: bases and acids.  
**Hazardous Decomposition Products:** Under fire conditions may produce gases such as hydrogen chloride and oxides of carbon and nitrogen.  
**Hazardous Reactions:** Hazardous polymerization will not occur.

**11. TOXICOLOGICAL INFORMATION**

**Toxicological Data:**

Data from laboratory studies on this product are summarized below:

- Oral:** Rat LD<sub>50</sub>: 2,500 mg/kg (female)
- Dermal:** Rat LD<sub>50</sub>: >5,000 mg/kg
- Inhalation:** Rat 4-hr LC<sub>50</sub>: >2.03 mg/L
- Eye Irritation:** Rabbit: Severely irritating
- Skin Irritation:** Rabbit: Minimally irritating
- Skin Sensitization:** Not a contact sensitizer in guinea pigs following repeated skin exposure.

**Subchronic (Target Organ) Effects:** Repeated overexposure to phenoxy herbicides may cause effects to liver, kidneys, blood chemistry, and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods. Repeated overexposure to picloram may affect the liver. Isopropanol is a central nervous system depressant. Overexposure to isopropanol may also affect the liver, kidneys and skin.

**Carcinogenicity / Chronic Health Effects:** Prolonged overexposure to phenoxy herbicides can cause liver, kidney and muscle damage. The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as a class 2B carcinogen, the category for limited evidence for carcinogenicity in humans. However, more current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic potential. The U.S. EPA has given 2,4-D a Class D classification (not classifiable as to human carcinogenicity). Picloram acid did not cause cancer in laboratory animals.

**Reproductive Toxicity:** No impairment of reproductive function attributable to 2,4-D has been noted in laboratory animal studies. Picloram acid did not interfere with reproduction in animal studies.

**Developmental Toxicity:** Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals. Picloram acid did not cause birth defects or any other fetal effects in laboratory animals, even at exposure level having an adverse effect on the mother. Isopropanol at extremely high concentrations has been reported to cause birth defects and fetal toxicity in rats. At lower concentrations there were no effects on the fetus.

**Genotoxicity:** There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic. The preponderance of data shows picloram to be non-mutagenic in *in-vitro* tests and in animal studies.

**Assessment Carcinogenicity:**

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Chlorophenoxy Herbicides	No	2B	No	No

See Section 2: HAZARDS IDENTIFICATION for more information.

<b>12. ECOLOGICAL INFORMATION</b>
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**Ecotoxicity:**

Data on TIPA Salt of 2,4-D Acid:

Bluegill Acute LC <sub>50</sub> :	432 mg/l	Pink Shrimp Acute LC <sub>50</sub> :	744 mg/l
Rainbow Trout Acute LC <sub>50</sub> :	317 mg/l	Tidewater Silverside Acute LC <sub>50</sub> :	376 mg/l
Daphnia Acute LC <sub>50</sub> :	748 mg/l	Growth Inhibition EC <sub>50</sub> Green Algae:	103 mg/l

Data on Picloram TIPA Salt:

Rainbow Trout Acute LC <sub>50</sub> :	25 mg/l	Bobwhite Quail 8-day Dietary LC <sub>50</sub> :	>10,000 ppm
Honey Bee Contact LD <sub>50</sub> :	>100 mg/bee	Mallard Duck 8-day Dietary LC <sub>50</sub> :	>10,000 ppm
Tidewater Silverside Acute LC <sub>50</sub> :	57.2 mg/l	Growth Inhibition EC <sub>50</sub> Blue-Green Algae:	740 mg/l
Oyster, Shell deposition EC <sub>50</sub> :	10-18 mg/l		

**Environmental Fate:**

In laboratory and field studies, TIPA salt of 2,4-D acid salt rapidly dissociated to parent acid in the environment. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks. In laboratory and field studies, TIPA salt of Picloram acid rapidly dissociated to parent acid in the environment. However, picloram may be present in ionized form at environmental pH contributing to high solubility in water and high potential mobility in soils. Picloram variably binds to organic materials in the soils with adsorption increasing as the levels of organic matter and clay increase. It is stable to hydrolysis and anaerobic degradation processes. Under aerobic soil conditions the typical half-life ranges from 167 - 513 days, but may be as little as 30-90 days in the presence of adequate soil moisture and warm temperatures. Photolysis half-life ranges from 2.3 - 9.58 days and is a secondary route of degradation.

<b>13. DISPOSAL CONSIDERATIONS</b>
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**Waste Disposal Method:**

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

**Container Handling and Disposal:**

**Nonrefillable Containers 5 Gallons or Less:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a 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. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

**Nonrefillable containers larger than 5 gallons:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it 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. **Pressure rinse as follows:** 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 containers larger than 5 gallons:** 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. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

#### 14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

##### **DOT**

##### **< 49 gallons per completed package**

Non Regulated - See 49 CFR 173.132(b)(3)

##### **≥ 49 gallons per completed package**

UN 3082, RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(2,4 DICHLOROPHENOXYACETIC ACID), 9, III

##### **IMDG**

Non Regulated

##### **IATA**

Non Regulated

#### 15. REGULATORY INFORMATION

##### **U.S. Federal Regulations:**

**TSCA Inventory:** This product is exempted from TSCA because it is solely for FIFRA regulated use.

##### **SARA Hazard Notification/Reporting:**

##### **Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):**

Immediate, Delayed

##### **Section 313 Toxic Chemical(s):**

Acetic Acid, (2,4-Dichlorophenoxy)- (CAS No. 94-75-7), 21.2% equivalent by weight in product  
Picloram (CAS No. 1918-02-1), 5.7% equivalent by weight in product

##### **Reportable Quantity (RQ) under U.S. CERCLA:**

Acetic Acid, (2,4-Dichlorophenoxy) - (CAS No. 94-75-7) 100 pounds

##### **RCRA Waste Code:**

Acetic Acid, (2,4-Dichlorophenoxy) - (CAS No. 94-75-7) U240

##### **State Information:**

The following product components are cited on certain state lists. Check individual state requirements.

Isopropanol (CAS No. 67-63-0) ≥ 1%

**California Proposition 65:** Not Listed.

**16. OTHER INFORMATION**

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

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