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Version 5

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

Product identifier.

Product Name Avenue™ South Broadleaf Herbicide for Turfgrass

Other means of identification

Product Code PBI FP 873-6

EPA Pesticide Registration Number 2217-996

Recommended use of the chemical and restrictions on use

Recommended Use Herbicide

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address

PBI-Gordon Corporation
P.O. Box 860350
Shawnee, KS 66286

Company Name

PBI-Gordon Corporation
P.O. Box 860350
Shawnee, KS 66286

Manufacturer

PBI-Gordon Corporation
P.O. Box 860350
Shawnee, KS 66286

Emergency telephone number

24 Hour Emergency Phone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Chronic Aquatic Toxicity

Category 3

Label elements

Emergency Overview

Hazard statements

- Harmful to aquatic life with long lasting effects

Appearance Liquid

Physical state Liquid

Odor Amines

Precautionary Statements - Prevention

Wear protective gloves/eye protection/face protection
Avoid release to the environment

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Have the product label with you when calling a poison control center or doctor or going in for treatment. You may also contact 1-877-800-5556 for emergency medical treatment advice.

Other information

Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable.

Mixture

Chemical name	CAS-No	Weight-%
2,4-D, dimethylamine salt	2008-39-1	7.28
Dimethylamine dicamba	2300-66-5	2.06
Sulfentrazone	122836-35-5	0.70
Penoxsulam	219714-96-2	0.70
Trade Secret	Trade secret	0.1-1*

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. If symptoms persist, call a physician.
Inhalation	Remove to fresh air. If symptoms persist, call a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms No information available

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.
Unsuitable extinguishing media	No information available.
Specific hazards arising from the chemical	In the event of fire and/or explosion do not breathe fumes. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment for fire-fighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Ensure adequate ventilation.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so Prevent product from entering drains Do not flush into surface water or sanitary sewer system See Section 12 for additional ecological information

Other information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep in properly labeled containers. Keep from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
2,4-D, dimethylamine salt 2008-39-1	TWA: 10 mg/m ³ inhalable fraction S*	TWA: 10 mg/m ³	IDLH: 10 mg/m ³ , TWA: 10 mg/m ³
Trade Secret	STEL: 15 ppm TWA: 5 ppm	TWA: 10 ppm TWA: 18 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 18 mg/m ³	IDLH: 500 ppm TWA: 10 ppm TWA: 18 mg/m ³

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles.

Hand protection Chemical resistant gloves.

Skin and body protection Wear long-sleeved shirt, long pants, socks and shoes.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be

required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Liquid
Color	Brown
Odor	Amines
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7.5-8.5	
Melting point/freezing point		None known
Boiling point / boiling range	100 °C / 212 °F	
Flash point	> 100 °C / 212 °F	Pensky-Martens Closed Cup (PMCC)
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	1.055	
Water solubility	Miscible in water	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known

Other Information

Liquid Density	8.788 pounds/gallon
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Stability

No information available

Possibility of hazardous reactions

None under normal processing.

Hazardous polymerization

Will not occur.

Conditions to avoid

Keep out of reach of children.

Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

Hazardous decomposition products

May emit toxic fumes under fire conditions. Hydrogen chloride. Nitrogen oxides (NOx). Carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	May cause slight irritation.
Skin contact	May cause slight irritation.
Ingestion	May be harmful if swallowed.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2,4-D, dimethylamine salt 2008-39-1	= 625 mg/kg (Rat)	= 2115 mg/kg (Rabbit)	-
Dimethylamine dicamba 2300-66-5	= 1267 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	-
Sulfentrazone 122836-35-5	> 2855 mg/kg (Rat)	-	> 4.14 mg/L (Rat) 4 h
Penoxsulam 219714-96-2	> 5000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 2 mg/L (Rat) 4 h
Trade Secret	= 698 mg/kg (Rat)	= 3900 mg/kg (Rat)	= 4540 ppm (Rat) 6 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity - Product Information

Unknown Toxicity

- 25 % of the mixture consists of ingredient(s) of unknown toxicity
- 25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

LD50 Oral	> 5000 mg/kg (female rats)
LD50 Dermal	> 5000 (male rats) (female rats)
LC50 Inhalation (DUST)	> 2.04 mg/L (male rats) (female rats)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	No information available.

Carcinogenicity The International Agency for Research on Cancer (IARC) lists chlorophenoxy herbicides in its Group 2B (limited evidence for Carcinogenicity in humans.) The US EPA has given the chlorophenoxy Herbicides 2,4-D, 2,4-DP, MCP, and MCPA a Class D classification (not classifiable as to human carcinogenicity.) More current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic effects and a recent World Health Organization (WHO) review of 2,4-D toxicology has concluded that 2,4-D is not a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
2,4-D, dimethylamine salt 2008-39-1	-	Group 2B	-	-

Legend

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Target Organ Effects Eyes, Respiratory system, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity Harmful to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
2,4-D, dimethylamine salt 2008-39-1	-	326: 96 h Cyprinus carpio mg/L LC50 static	-	-
Trade Secret	9: 96 h Pseudokirchneriella subcapitata mg/L EC50	111 - 125: 96 h Oncorhynchus mykiss mg/L LC50 127 - 349: 96 h Poecilia reticulata mg/L LC50 semi-static 120: 96 h Oncorhynchus mykiss mg/L LC50 static 210: 96 h Poecilia reticulata mg/L LC50 static 396: 96 h Brachydanio rerio mg/L LC50 static	EC50 = 26.8 mg/L 15 min	88.7: 48 h Daphnia magna Straus mg/L EC50

Persistence and degradability No information available.

Bioaccumulation No information available.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse empty containers.

14. TRANSPORT INFORMATION

Note: Products under 156 gallons not regulated by DOT. Below are designations for products over 156 gallons. See RQ

DOT

UN/ID no. UN3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class 9
Packing group III

Reportable Quantity (RQ) 2,4-D, dimethylamine salt: RQ (lb)= 1374.00=156 gallons
Special Provisions 8, 146, 173, 335, IB3, T4, TP1, TP29
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

TDG

UN/ID no. UN3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class 9
Packing group III
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

MEX

UN/ID no. UN3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class 9
Special Provisions 274, 331, 335
Packing group III
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

ICAO (air)

UN/ID no. UN3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class 9
Packing group III
Special Provisions A97, A158, A197
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

IATA

Limited quantity applies with an inner packaging less than 5 L or gross package weight less than 30 kg.
UN number UN3082
UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es) 9
Packing group III
Special Provisions A97, A158, A197
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

IMDG

Limited quantity applies with an inner packaging less than 5 L or gross package weight less than 30 kg.
UN number UN3082
UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es) 9
Packing group III
EmS-No. F-A, S-F
Special Provisions 274, 335, 969
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, DIMETHYLAMINE SALT), 9, III

15. REGULATORY INFORMATION

U.S. EPA Label Information

EPA Pesticide Registration Number 2217-996

Federal Insecticide, Fungicide, Rodenticide Act Regulations

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 workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

EPA Pesticide Label

CAUTION

KEEP OUT OF REACH OF CHILDREN

Hazards to Humans and Domestic Animals

CAUTION: Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. **Environmental Hazards:** This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate. This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

International Inventories

TSCA	Not Listed
DSL/NDSL	Not Listed
EINECS/ELINCS	Not Listed
ENCS	Not Listed
IECSC	Not Listed
KECL	Not Listed
PICCS	Not Listed
AICS	Not Listed

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Dimethylamine dicamba - 2300-66-5	1.0

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Trade Secret	1000 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
2,4-D, dimethylamine salt 2008-39-1	100 lb	-

Trade Secret	1000 lb	-
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US State Regulations

U.S. State Right-to-Know Regulations

US State Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Trade Secret	X	-	X
Dimethylamine dicamba 2300-66-5	X	-	-
Trade Secret	X	X	X

16. OTHER INFORMATION

<u>NFPA</u>	Health hazards 1	Flammability 1	Instability 0	Physical and Chemical Properties - Personal protection X
<u>HMIS</u>	Health hazards 1	Flammability 1	Physical hazards 0	

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of PBI-Gordon Corporation's knowledge, information and belief at the date of this publication. The information given is designed only as 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 other process, unless specified in the text. PBI-GORDON CORPORATION MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. Given the variety of factors that can affect the use and application of this product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. Each user is also responsible for evaluating the conditions of use and designing the appropriate protective mechanisms to prevent employee exposures, property damage, or release to the environment. PBI-Gordon Corporation assumes no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

End of Safety Data Sheet