



Chemicals Corp.

Technical Data Sheet

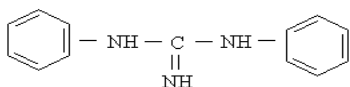
DPG

Diphenyl guanidine

CAS Number: 102-06-7

Molecular weight: 211.27

Molecular formula: C₁₃H₁₃N₃



PRODUCT INFORMATION

PRODUCT SPECIFICATIONS		GRANULES	OIL POWDER	POWDER
Appearance		Grey-white granules	Grey-white oil powder	Grey-white powder
Melting Point	°C min	145.0	145.0	145.0
Loss on drying	% max	0.30	0.40	0.30
Ash	% max	0.30	0.40	0.30
Residue on sieve (63µm)	% max	-	0.50	0.50
Residue on sieve (150µm)	% max	-	0.10	0.10
Oil content	%	-	0.0 – 2.0	-
<u>Typical properties</u>				
Density	g/cm ³	1.08-1.19		
<u>Packaging</u>				
Bag		25kg (55 lbs)		
Pallet		500kg or 600kg (1102 lbs or 1323 lbs)		

FUNCTION

DPG functions as a mid-speed vulcanizing accelerator for natural rubber or synthetic rubber.

APPLICATIONS AND PROPERTIES

- DPG is used as a secondary accelerator with thiazoles and sulphenamides in NR and SBR compounds.
- DPG can be used in latex as a secondary gelling agent (foam stabilizer) in the silico-fluoride foam process.
- Exhibits better storage stability than thiurams and dithiocarbamates, but is not as active.
- Material is odourless and non-poisonous.
- Soluble in chloroform, toluene, benzene and ethanol.
- Insoluble in gasoline and water.
- DPG is regulated for use under the following sections of FDA 21 CFR:
177.2600 – Rubber Articles Intended for Repeated Use in Food Contact.

STORAGE

Material should be stored in a cool, dry, well ventilated area, away from high temperatures. The maximum recommended storage life is 3 years when stored under normal conditions.

HANDLING PRECAUTIONS

For detailed information on toxicological properties and handling precautions, please refer to the current Safety Data Sheet. This information is available by request from **SunBoss Chemicals Corp.**

[Revised: November 6, 2014 by kk]

Safety Data Sheet

DPG

1. IDENTIFICATION OF SUBSTANCE / COMPANY INFORMATION

Chemical Name	Diphenyl guanidine
Synonyms	Accelerator DPG
CAS #	102-06-7
Formula	C ₁₃ H ₁₃ N ₃
Chemical Family	Accelerator
Supplier	SunBoss Chemicals Corp.
Address	8-110 West Beaver Creek Road Richmond Hill, ON L4B 1J9
Telephone	905-707-3433
Fax	905-707-7393

Emergency Information

After normal hours call Chemtrec at 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS No.</u>	<u>Weight %</u>	<u>EC No.</u>
Diphenyl guanidine	102-06-7	99	203-002-1
	<u>Symbol(s)</u>	<u>Risk Phrase(s)</u>	
	Xn, N	R22, R36/37/38, R51/53, R62	

3. HEALTH HAZARDS INFORMATION

EMERGENCY OVERVIEW

Signal Word: WARNING!

Harmful if swallowed.

Irritating to eyes respiratory system and skin.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Possible risk of impaired fertility.

Inhalation	May cause mild respiratory irritation. May irritate mouth, nose, and throat. Signs/symptoms can include soreness of the nose and throat, coughing and sneezing.
Ingestion	Harmful if swallowed. May cause pain, nausea, vomiting and diarrhea. Illness may occur after a single swallowing of relatively large quantities of this material.

Skin contact	Causes moderate skin irritation. Causes drying of the skin. May cause a rash and itching of the skin. May cause an allergic skin reaction.
Eye Contact	Causes mild eye irritation. Signs/symptoms can include redness, swelling, pain and tearing.

4. EMERGENCY FIRST AID PROCEDURES

Inhalation	Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion	If swallowed, give at least 3 – 4 glasses of water, but do not induce vomiting. Give immediate medical attention.
Skin	Immediately wash with water and soap and rinse thoroughly. Remove contaminated clothing and launder before reuse. Seek immediate medical advice.
Eyes	Rinse opened eye for several minutes under running water. Then consult a doctor.

5. FIRE AND EXPLOSION HAZARD MEASURES

Flammability	Not determined
Flash Point	315°F /137°C
Flash Point Method	Not determined
DOT Category	UN 3077, Environmentally Hazardous Substance, Solid, N.O.S., (Diphenyl guanidine), 9, PG III
Extinguishing Media	Water spray, foam, carbon dioxide or dry chemical
Auto Ignition Temperature	Not determined
Flammable Limits	Not determined
Special Fire Fighting Procedures	Fight fire from a safe distance and from a protected location. Use water spray to cool fire exposed surfaces. Do not allow run-off to enter waterways.
Special Protective Equipment	Firefighters and others who may be exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus.
Unusual Fire and Explosion Hazards	Combustible. Toxic emissions may result if product is involved in a fire.

6. ACCIDENTAL RELEASE MEASURES

Procedures	Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.
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Clean up Methods

Isolate area and remove sources of friction, impact, heat, low level electrical current, and RF energy. Isolate spill and stop leak where safe. Scoop up and remove solids. Do NOT spread spilled product with water.

7. HANDLING AND STORAGE

Handling

Work clothes should be washed separately at the end of each work day. Disposable clothing should be discarded with material. Avoid generating or breathing dust. Avoid contact with eyes, skin and clothing. Reclose containers of unused product. Wash hands before eating and drinking. Do not reuse the container. Keep ignition sources away.

Storage

Store closed containers in a cool, dry, well-ventilated area. Store away from strong oxidizing materials. Avoid exposure to direct sunlight.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

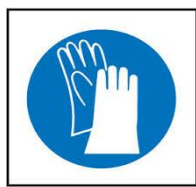
Engineering Controls

Local exhaust ventilation as necessary to control any air contaminants to within their exposure limits during the use of this product. If air is to be re-circulated, it must be filtered properly.

Exposure Limits
Diphenyl guanidine

ACGIH TLV
None listed
(OEL – 2.5 mg/m³ recommended for total dust)

OSHA PEL
None listed



Respiratory

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure.

Eyes

Wear safety glasses or goggles to protect against exposure. Eye protection is not required during typical product use conditions.

Skin

Normal work coveralls. Launder contaminated clothing before reuse.

Gloves

Use gloves as a standard industrial handling procedure. All cleanable impervious glove types are acceptable.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Grey-white powder or granules

Odour

Aromatic

Specific Gravity

1.13 @ 25°C

Density

1.08-1.19 g/cm³

Bulk Density

Not determined

Solubility in water	INSOLUBLE
pH	Not applicable
Other Solubility	Soluble in acetone organic liquids, including fats and oils
Boiling point	Decomposes above 170°C
Melting Point	147°C
Molecular Weight	211.26
Molecular Formula	C ₁₃ H ₁₃ N ₃

10. STABILITY AND REACTIVITY

Chemical Stability	Stable when store at room temperature in closed, original container. Stable under normal conditions of handling, use and transportation. Stable if protected from heat and exposure to air. Loses potency with time. Protect from moisture.
Conditions to avoid	Keep away from heat, sparks and flame.
Incompatibility	Contact with oxidizing agents.
Hazardous Polymerization	Will not occur.
Hazardous Decomposition Products	Carbon monoxide. Oxides of nitrogen.
Additional Guidelines	None

11. TOXICOLOGICAL INFORMATION

Acute oral LD 50 (mg/kg)	350 – 507 mg/kg (Rat)
Acute Dermal LD 50 (mg/kg)	>2000 mg/kg (Rabbit)
Acute Inhalation LC50 (mg/l)	Not determined
Principle routes of Exposure	Eyes. Inhalation. Dermal –skin.
Ingestion	Harmful if swallowed. May cause pain, nausea, vomiting and diarrhea. Illness may occur after a single swallowing of relatively large quantities of this material.
Skin contact	Causes moderate skin irritation. Signs/symptoms can include redness, swelling, itching, and dryness. Causes drying of the skin. May cause a rash and itching of the skin. May cause an allergic skin reaction.
Inhalation	Causes moderate respiratory irritation. Signs/symptoms can include soreness of the nose and throat, coughing and sneezing.
Eye Contact	Causes mild eye irritation. Signs/symptoms can include redness, welling, pain and tearing.

Aggravated Conditions	Pulmonary disorders. Dermal ailments. Eye, skin, respiratory, blood, liver and/or kidney ailments. This material or its emissions may cause an allergic or sensitization reaction and thereby aggravate systemic disease.
Carcinogenicity	Negative in standard tests using bacteria and/or yeast cells. This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC or OSHA.
Primary Irritation Effect	Moderately irritating to eyes. Slightly irritating to skin. Probable skin sensitizer.
Genotoxicity	Both negative and weak positive results in standard in vitro and in vivo tests using mammalian cells.
Reproductive/Developmental Toxicity	Chronic animal studies have shown this material to cause reproductive effects, blood effects and organ weight changes.

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity	96Hr LC50 Rainbow Trout = 11.0 mg/l. 96Hr LC50 Bluegill Sunfish = 9.6 mg/l. 96Hr LC50 Fathead Minnow = 4.2 mg/l.
Acute Crustacean Toxicity	48Hr EC50 Daphnia Magna = 17.0 mg/l
Octonal/Water Coefficient	1.69 log P
Chemical Fate Information	Biodegradability: >90% in <2 weeks. Photo-transformation: T(1/2) =>95 days
Other Information	Tests indicate this material will not bio-accumulate or persist in the environment.

13. DISPOSAL CONSIDERATIONS

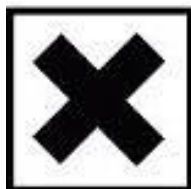
Waste Disposal	This material is not a RCRA hazardous waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Empty containers should be handled in a manner not to cause dusting during collection, transportation and disposal. Consult state, local or national regulations to ensure proper disposal.
Contaminated Packaging	If empty container retains product residues, all label precautions, must be observed. Store away from ignition sources. Transport with all closures in place. Return for reuse or dispose according to national or local regulations. Dispose of container according to national or local regulations.

14. TRANSPORT INFORMATION

<u>DOT</u>	Not Regulated
Note:	Not listed in DOT Marine Pollutant list Appendix B to 172,101, therefore, not regulated as Marine Pollutant by DOT.
<u>IATA</u>	Not Regulated
<u>IMDG</u>	Not Regulated

15. REGULATORY INFORMATION**LABELLING ACCORDING TO DIR 67/548 EEC**

EC Number: 212-344-0
 Classification based on: TESTS

**HARMFUL (Xn)****DANGEROUS FOR THE ENVIRONMENT (N)****CLASSIFIED ACCORDING TO DIRECTIVE 199/45/EC****Risk Phrases:**

R22 - Harmful if swallowed.
 R36/37/38 – Irritating to skin, eyes and respiratory system.
 R51/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.
 R62 - Possible risk of impaired fertility

Safety Phrases:

S24 – Avoid contact with skin.
 S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S36 – Wear suitable protective clothing.
 S37 – Wear suitable gloves.
 S60 – This material and its container must be disposed of as a hazardous waste.
 S61 – Avoid release to the environment. Refer to Special Instructions/Safety Data Sheet.

FDA Status 21 CFR

Regulated for use under the following sections of 21 CFR:
 177.2600. Rubber articles intended for repeated use in food contact.

TSCA

Listed

Canadian DSL

Listed

EINECS/ELINCS

Listed

US Regulations

SARA Section 302	None Found
SARA 311/312 Hazard Categories	Immediate
SARA 313 Chemical	None Reported
RCRA Status	Not a RCRA waste

Canadian Regulations

WHMIS Hazard Class



D1B TOXIC MATERIALS; D2B TOXIC MATERIALS/Materials Causing Other Toxic Effects

NPRI

Component Polyethyleneglycol Mono(nonylphenyl) Ether: NPRI Part 1, Group 1, ID#178. Minimum concentration 1%.

16. HAZARD RATING SYSTEM

NFPA Rating (Scale 0-4)

- 0 - Minimal Hazard
- 1 - Slight Hazard
- 2 - Moderate Hazard
- 3 - Serious Hazard
- 4 - Severe Hazard

HEALTH	2
FIRE	1
REACTIVITY	0

HMIS Classification (Scale 0-4)

- 0 - Minimal Hazard
- 1 - Slight Hazard
- 2 - Moderate Hazard
- 3 - Serious Hazard
- 4 - Severe Hazard

HEALTH	2
FIRE	1
REACTIVITY	0

17. OTHER INFORMATION

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. SunBoss Chemicals Corp. extends no warranty and assumes no responsibility for the accuracy or sufficiency of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required. It is the responsibility of the user to comply with all Federal, State and local laws and regulations. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

Abbreviations and Acronyms

ACGIH: American Conference of Governmental Industrial Hygienists Inc.
CAS: Chemical Abstracts Service (Division of American Chemical Society)
DOT: Department of Transportation (USA)
EINECS: European Inventory of Existing Commercial Chemical Substances
HMIS: Hazardous Materials Identification System (USA)
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Marine Code for Dangerous Goods
LD50: Lethal Dose Medium
LC50: Lethal Concentration Medium
EC50: Effective Concentration Medium
NIOSH: National Institute for Occupational Safety and Health
NFPA: National Fire Protection Association (USA)
NPRI: National Pollutant Release Inventory (Canada)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration (USA)
TDG: Transportation of Dangerous Goods (Canada)
TLV: Threshold Limit Value

TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information Systems (Canada)

18. REVISION DATE

Revision number: 5

Date of Issue: September 3, 2014

Changes: Number and format of headings changed; Updates to Sections 1: Identification of Substance - EC information added; 2: Health Hazards Information; 8: Specific Personal Protection Equipment - pictograms added; 14: Transport information - pictograms added; 15: Regulatory information - EC information added; 16: Hazard Rating System - table added; 17: Abbreviations and Acronyms added