Safety Data Sheet

Denax DPG SDS

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION	
Manufacturer Lučební závody Draslovka a.s. Kolín Havlíčkova 605, 280 02 Kolín, Česká republika	Emergency Contact Chemtrec: 1-800-424-9300 (USA) (1)330-542-8400 (outside USA)
Trade Name(s): Denax DPG Oil Granule, Denax DPG Oiled Powder	Synonyms: 1,3-Diphenylguanidine, DPG
Chemical Name: 1,3-Diphenylguanidine	CAS Number: 102-06-7
Relevant identified uses of the substance or mixture and uses advised against: No further relevant information available.	Application of the substance/the preparation: Chemicals for synthesis.
Issued By: Sovereign Chemical Company According to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS	Date of Issue: June 30, 2020

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

The substance is classified as dangerous according to Regulation EC 1272/2008.

Toxic if swallowed. May cause respiratory irritation. Suspected of damaging fertility. Causes serious eye damage. Causes skin irritation.

Toxic to aquatic life with long lasting effects.

Classification according to (EC) 1272/2008:

Codes for hazard classes and categories

Hazard statement Codes
Acute Tox. 3, H301
STOT SE 3; H335
Repr. 2; H361f
Eye Dam. 1, H318
Skin Irrit. 2; H315
Aquatic Chronic 2, H411

Specific concentration limits (SCL) and M-factor
SCL: not stated
M-factor: not stated

Label elements
Hazard-determining components of labeling: 1,3-diphenylguanidine

Hazard Pictograms

Signal word: Danger

Hazard statements

H301 – Toxic if swallowed.
H315 – Causes skin irritation.
H318 – Causes serious eye damage.
H335 – May cause respiratory irritation.
H361f – Suspected of damaging fertility.
H411 – Toxic to aquatic life with long lasting effects.

Precautionary statements

P202 – Do not handle until all safety precautions have been read and understood.
P270 – Do not eat, drink or smoke when using this product.
P273 – Avoid release into the environment.
P280 – Wear protective nitrile gloves, protective clothing and eye protection.
P261 – Avoid breathing dust.
P301 + P310 – IF SWALLOWED: Immediately call a doctor/physician.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

The amount and type of oil in DENAX DPG OIL POWDER and DENAX DPG OIL GRANULE has no effect on the classification and the hazards of the product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS No., Description: 102-06-7, 1,3-diphenylguanidine
Identification number(s)
EC number: 203-002-1
Index number: 612-149-00-4

4. FIRST AID MEASURES

Description of first aid measures

General: In case of physical discomfort or health troubles or if there is any doubt about poisoning, notify a doctor and provide him with information form this SDS.

If inhaled: stop exposition immediately, move the affected person to fresh air, provide the affected person against cold, ensure medical treatment, especially in case of outlasting coughing, shortness of breath or other symptoms

If on skin: remove contaminated clothing, wash the affected area with large amount of (preferably) lukewarm water, in case of undamaged skin, it is possible to use soap, suds or shampoo, ensure medical treatment, especially when skin irritation continues

If in eyes: immediately start rinsing eyes with running water, open eyelids (use force if necessary); if the victim has contact lenses, remove them immediately, rinse for at least 10 minutes, ensure medical treatment, if possible, ophthalmologist

In case of ingestion: DO NOT INDUCE VOMITING, ensure medical treatment

Most important symptoms and effects, both acute and delayed

Inhalation: Irritates central nervous system. Causes bitter taste in mouth, makes swallowing painful and reduces acidity of gastric juices.

Skin contact: Skin exposure may result in symptoms of irritated skin, such as itching or redness.

Eye contact: The product causes eye burning sensation and reddening of eyelids.

Ingestion: Irritates central nervous system. Causes bitter taste in mouth, makes swallowing painful and reduces acidity of gastric juices.

Indication of any immediate medical attention and special treatment needed
Inform a doctor about first aid measures.

5. FIRE FIGHTING MEASURES

Extinguishing media
Suitable extinguishing media:
Fragmented stream of water, extinguishing foam.

Unsuitable extinguishing media:
Powder, CO2. Adjust to surrounding materials.
Adapt to surrounding materials.

Special hazards arising from the substance or mixture
Dangerous products of decomposition - carbon monoxide, oxides of nitrogen

Advice for firefighters

Use self-contained breathing apparatus (EN 137)
From the standpoint of fire safety, whirled DPG dust ignites at the temperature of 645 °C. The lower explosion limit is at 39 g.m-3 at the initiation energy of 9 kJ.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use self-contained breathing apparatus (EN 137). Mark out the contaminated area and prevent to enter unauthorized persons.
Observe the instructions in Sections 7 and 8.

Environmental precautions
Prevent accidental release into the drains, surface and groundwater. If is water contaminated inform the competent local authorities.

Methods and material for containment and cleaning up

a) Small leak
   Remove mechanically (collect into a container). Hand over to authorized person for disposal.
   Decontamination: water
b) Big leak
   Remove mechanically. Hand over to authorized person for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with eyes and skin. Use personal protective equipment in accordance with Section 8. Observe valid health and safety regulations.
Protection from fire or explosion: Prevent increase in temperature. For other precautions see Exposure Scenario.

Conditions for safe storage, including any incompatibilities

Safe storage advice: Store in original packaging.
Other special requirements, including the type of packaging material: Paper bag, a pallet protected with a polyethylene foil or FIBC of plastic woven material. Make sure the label is visible. When stored on shelves, identification of the substance on the shelf is necessary.
Requirements for joint storage: Incompatible products – oxidants, strong acids.
Safe storage requirements: Store in a dry, properly ventilated, closed area while contained in original packaging placed on wooden or plastic pallets. Keep away from foodstuffs, water sources, and sewer pipes. Keep out of reach of children.

Specific end use(s)

See Exposure Scenario
SU11 Manufacture of rubber products

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Control parameters

Name of substance (component(s)):	CAS	Eight hours mg/m³	Short-term mg/m³
1,3-Diphenylguanidine	102-06-7	*)	*)
Occupational exposure limit values according to direction 39/2000/EC and 15/2006/EC			

Name of substance (component(s)):	CAS	Eight hours mg/m³ TWA	Short-term mg/m³ STEL
1,3-Diphenylguanidine	102-06-7	Not stated	Not stated

DNEL	1.7 mg/kg bw/day (chronic dermal worker) 1.2 mg/m³ (chronic inhalation worker) 0.85 mg/kg bw/day (chronic dermal general population) 0.3 mg/m³ (chronic inhalation general population) 0.085 mg/kg bw/day (chronic oral general population)
PNEC	30 µg/l (freshwater) 14 µg/l (intermittent releases) 3 µg/l (marine water) 1.47 mg/l (STP) 2.51 mg/kg sediment dw (sediment freshwater) 0.251 mg/kg sediment dw (sediment marine water) 0.404 mg/kg soil dw (soil)

Exposure controls

Work in properly ventilated area; see Exposure Scenario.

Respiratory protection: Dustproof respirator with FFP1 dust filter or combined filter e.g., A2B2E2K2P3D (EN136, 14 387 + A1) should be used if concentration in working environment exceeds recommended values or if work takes place in an environment that is difficult to ventilate properly.

Eye protection: Goggles or a shield. (EN 166)

Hand protection: Rubber Gloves (thickness, .4mm; material, nitrile rubber; penetration time, > 480 min)

Skin protection: Protective suit (EN ISO 13688), protective shoes (EN ISO 20346).

Environmental exposure control: See Law no. 86/2002 Coll., Air Protection; Law no. 254/2001 Coll., Waters and Exposure scenario.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Form: Powder or fine granules. Color: White to greyish.	Change in Condition Melting Point/Melting Range: 300 °F / 149 °C (Approx.). Boiling Point/Boiling Range: 250 °C

Odor: None.	Octanol/Water Partition Coefficient: log Kow= 2.42 at pH 11 and 21.1 °C
Odor threshold: Not determined.	pH Value: Not applicable.
Vapor pressure: 3,7e-10 Pa at 25 °C	Flash point: Not applicable.
Density at 20 °C: 1.18 g/cm³.	Flammability (solid, gaseous): Product is not flammable.
Relative density: 0.348 (water = 1)	Ignition temperature: Not determined.
Vapor density: Not applicable.	Decomposition temperature: Not determined.
Evaporation rate: Not applicable.	Self-igniting: Not determined.
Solubility in / Miscibility with water: 325 mg/l at 20 °C (solubility in water)	Danger of explosion: Whirled dust may create explosive mixture with air – not sufficient for classification
Viscosity Dynamic: Not applicable. Kinematic: Not applicable.	Explosion limits Lower: 39 g/m3 (whirled dust) Upper: Not determined.
Solvent content: Not applicable.	Solids content: Not determined.

Other information: No further relevant information available.

10. STABILITY AND REACTIVITY

Reactivity: Data not available

Chemical stability: The product is stable under the conditions defined for handling, application, and transport. Store at room temperature in original, sealed packaging.

Possibility of hazardous reactions: Data not available

Conditions to avoid: Store protected from moisture and heat.

Incompatible materials: Oxidants, strong acids.

Hazardous decomposition products: Nitrogen oxides, carbon monoxide

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

a) Acute toxicity
1,3-Diphenylguanidine has an acute oral LD50 of 107-111 mg/kg bw (rat). By dermal route, the LD0 is >= 2,000 mg/kg bw (rabbit). After oral administration, the symptoms were mainly of neural character, but postmortem examination revealed affected liver (dark color) and severe irritation of the gastro-intestinal tract. On a weight-of-evidence basis, the 30-min LC0 is higher than 500 mg/m3 in rats and dogs.

b) Skin corrosion/irritation
Causes skin irritation. The acute dermal irritation of 1,3-diphenylguanidine (DPG) was evaluated in rabbits according to the Draize test. 0.5 g of DPG was applied undiluted to intact and to abraded skin of 6 New-Zealand White albino rabbits and held in contact for 24 hours by means of an occlusive dressing. Mean scores over 24, 48 and 72 hours for the 6 animals were 0 for erythema and 0 for oedema for both intact and abraded skin.

c) Serious eye damage/irritation
Causes skin irritation. The Draize test was performed on rabbits to study the irritant power of 1,3 - diphenylguanidine (DPG). New Zealand White rabbits were exposed to 100 mg of DPG, and were observed 1, 24, 48, 72, 120 and 168 hrs. after exposition. Maximal Irritation score was 56.6 at 24 hours (over 110). The irritation was not fully reversible even after 7 days. Based on these results 1.3-diphenylguanidine (DPG) is considered as severely irritating to the eyes (rabbit).

d) Respiratory or skin sensitization
Based on available data, the classification criteria are not met. Not classified as sensitizing based on OECD 406 tests.

e) Germ cell mutagenicity
Based on available data, the classification criteria are not met. 1,3-Diphenylguanidine gave negative results in numerous Ames tests and in vitro mammalian cell assays. An equivocal response was observed in a single Ames test, along with a positive result in a host mediated mutagenicity assay that was not reproducible. In vivo, negative results were seen in a (oral) mouse micronucleus assay.

f) Carcinogenicity
There is no evidence from the repeated dose studies that 1,3-diphenylguanidine is able to induce hyperplasia and/or pre-neoplastic lesions. In addition, the negative results from the series of in vitro and in vivo genotoxicity tests assessing gene mutation, and chromosomal damage do not suggest any cause for concern with respect to carcinogenicity.

g) Reproductive toxicity
Suspected of damaging fertility. 1,3-diphenylguanidine (DPG) showed negative results in the Ames test only with an S9-hamster mix (negative results with and without a S9-rat mix and with human S9). Negative results were observed in in vitro tests on mammal cells (MLA/TK, in vitro chromosomal aberration). There is sufficient proof to conclude that DPG is unable to induce hereditary mutations in somatic cells through systemic exposure. Moreover, after repeated administration in toxicity studies DPG did not induce direct toxicity for reproductive organs and is also expected to have no genotoxic effect on germ cells.

h) Specific target organ toxicity (STOT)– single exposure
Oral exposure NOEL 10 mg/kg/day Sub-chronic feeding experiments in rats and/or mice have been performed according to OECD guidelines and GLP. Based on the secondary toxic effects, due to poor palatability of the 1,3-diphenylguanidine-treated feed, the NOAEL lies at 250 ppm for rats (ca. 17 mg/kg b.w. and day) and 500 ppm for mice (ca. 75 mg/kg b.w. and day). Hazard statement H335 (May cause respiratory irritation.) has been added to the classification to correspond to the harmonized classification.

i) Specific target organ toxicity (STOT)– repeated exposure Based on available data; the classification criteria are not met.

j) Aspiration hazard Based on available data; the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Toxicity

Fish LC50-96h = 4.2 mg/l (Pimephales promelas)

Algae 72 h EC50 = 7.5 mg/l; 96 h EC50 = 1.7 mg/l (Selenastrum capricornutum)

Daphnia 24 h EC50 = 73.6 mg/l; 48 h EC50 = 17mg/l (Daphnia magna)

Bacteria In an oxygen consumption test following OECD guideline 209, with unadapted activated sludge from a laboratory plant as inoculums, an EC50 -3 hours of 147 mg/l was estimated (79 -208 mg/l).

Persistence and degradability

DPG (1,3-diphenylguanidine) is not readily biodegradable (0% after 20 days in the OECD 301 D assay, using nonadapted inoculum). However, use of inoculums, pre-adapted for 14 days led to 76% degradation of >60 % within 10 days at DPG concentrations of 2.4 mg/l and 74% at 0.8 mg/l (Bayer, 1988). The substance can therefore be considered as inherently biodegradable. Furthermore, Chou et al. (1980) conducted a study of primary degradation of DPG at pH 7.5 (measured at the beginning of the test) and found total loss of the parent substance within 14 days of exposure to unadapted river water. At the moment no information is available on the degradation potential of DPG in sediments and soil. It should however be considered that 99.9 % of DPG is already in protonated form at pH=7, and a further increase of proton concentration leads to increase in solubility. Since, in most cases, the soil pH is in the acidic range, the probability of a sportive fixation is slight.

Bioaccumulative potential DPG is characterized by a low potential of bioaccumulation in aquatic organisms based on log Kow = 2.42 and BCF <20.

Mobility in soil

Henry constant of DPG is H = 4,82e-8 Pa.m3/mol at 20 °C and H= 7.8 x 10-11 Pa.m3/mol at 25 °C. This value indicates an extremely low volatility in aqueous solvent.

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Results of PBT and vPvB assessment According to CSR the substance does not fulfill criteria for either PBT or vPvB.

Other adverse effects Not known

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

a) Possible hazards in disposing of the substance and contaminated packaging Dispose of waste and properly emptied containers in accordance with applicable waste legislation and other legal regulations issued to protect the environment. Then hand over to the authorized person to dispose of hazardous waste. The recommended use of the material, then energy recovery. Additional information may be provided by the manufacturer.

b) Physical/chemical properties that may affect waste treatment See above

c) Avoiding waste disposal through sewerage Avoid release into sewerage.

c) Special precautions for any recommended waste treatment See above

14. TRANSPORTATION INFORMATION

UN-Number UN2811

UN proper shipping name:
ADR, RID, IMDG, IATA, DOT TOXIC SOLID, ORGANIC, N.O.S (1,3-diphenylguanidine)

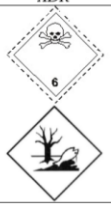
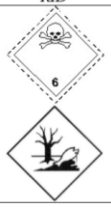
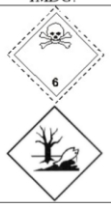
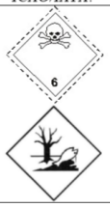
Transport hazard class(es)
DOT, ADR, RID, IMDG, IATA 6.1

Classification
ADR, RID 7.2

Packing group
DOT, ADR, RID, IMDG, IATA III

Hazard Identification
ADR 60 (Kemler)

Labels

ADR	*RID*	*IMDG:*	*ICAO/IATA:*
			
Note			
ADR	*RID*	*IMDG:*	*ICAO/IATA:*
		EmS: F-A, S-F	PAO: 670 CAO: 677

Environmental hazards
ADR, RID, IATA Product contains environmentally hazardous substances
IMDG Yes, marine pollutant

Special precautions for user: Not necessary

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) 1272/2008 (CLP) as amended
Regulation (EC) 1907/2006 (REACH) as amended
Applicable national regulations.

Chemical safety assessment: CSR

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Abbreviations and acronyms
Acute Tox. Acute toxicity
STOT SE Specific target organ toxicity – single exposure
Skin Irrit Skin Irritation
Aquatic Chronic Toxic to aquatic life, with long-lasting effects
Eye Dam. Serious eye damage
DNEL Derived no effect level
PNEC Predicted no effect concentration
ADR European agreement concerning the international carriage of dangerous goods by road
RID International rule for transport of dangerous goods by railway
IMDG International rule for transport of dangerous goods by sea
ICAO Technical instructions for safe transport of dangerous goods by air
CAS Chemical Abstracts Service
PEL Permissible exposure limit NPK-P Highest permissible concentration of chemical in working atmosphere
LD50 Lethal dose killing 50 % of tested population
LD0 Dose that should be non-lethal for any of the tested populations
LC50 Lethal concentration killing 50 % of tested population
LC0 Concentration that should be non-lethal for any of the tested populations
EC50 Effective concentration for 50 % of tested population
LOEC Lowest observed effect concentration
LOAEC Lowest observable adverse effect concentration
GLP Good laboratory practice
OECD Organization for Economic Co-operation and Development
PBT Persistent bioaccumulative toxic chemical
vPvB Very persistent and very bioaccumulative chemical
BCF Bioconcentration factor