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Revision Number 2

1. Identification**Product identifier****Product Name** DGR-400 GoDNA**Other means of identification****Product Code(s)** PD-MSDS-00114**Synonyms** None**Recommended use of the chemical and restrictions on use****Recommended use** For nucleic acid stabilization**Restrictions on use** No information available**Details of the supplier of the safety data sheet****Initial supplier identifier**DNA Genotek Inc., 500 Palladium Dr.,
Suite 3000, Ottawa, ON, Canada, K2V
1C2**Supplier Address**DNA Genotek Inc., 500 Palladium Dr.,
Suite 3000, Ottawa, ON, Canada, K2V
1C2**Manufacturer Address**DNA Genotek Inc., 500 Palladium Dr., Suite
3000, Ottawa, ON, Canada, K2V 1C2**Emergency telephone number****Emergency Telephone** +1 613-723-5757**2. Hazard(s) identification****Classification**

Flammable liquids

Category 3

Appearance aqueous solution**Physical state** Liquid**Odor** No information available**Label elements****Danger****Hazard statements**

Flammable liquid and vapor

**Precautionary Statements - Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves, protective clothing, eye protection and face protection
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 Keep container tightly closed
 Ground and bond container and receiving equipment
 Use explosion-proof electrical, ventilating, lighting and equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water and then shower

Fire

In case of fire: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage

Store locked up

Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant

Other information

Harmful to aquatic life with long lasting effects. Harmful to aquatic life.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

| Chemical name | CAS No | Weight-% | Hazardous Material Information Review Act registry number (HMIRA registry #) | Date HMIRA filed and date exemption granted (if applicable) |
|---------------------------|-----------|----------|--|---|
| Ethanol | 64-17-5 | 10-30 | - | - |
| Sodium Acetate Trihydrate | 6131-90-4 | 3-7 | - | - |
| Sodium dodecyl sulfate | 151-21-3 | 0.1-1 | - | - |

4. First-aid measures

Description of first aid measures**General advice**

IF exposed or concerned: Get medical advice/attention.

Inhalation

Remove to fresh air.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Ingestion

Rinse mouth.

Self-protection of the first aider

Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information.

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.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material.

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

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. Handling and storage**Precautions for safe handling**

Advice on safe handling Use personal protection equipment. Avoid breathing vapors or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or

explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations.

8. Exposure controls/personal protection

Control parameters

Exposure Limits

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH | |
|--------------------|--|--|--|----------------|
| Ethanol 64-17-5 | STEL: 1000 ppm | TWA: 1000 ppm TWA: 1900 mg/m ³ (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m ³ | IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³ | |
| Chemical name | Alberta | British Columbia | Ontario | Quebec |
| Ethanol 64-17-5 | TWA: 1000 ppm TWA: 1880 mg/m ³ | STEL: 1000 ppm | STEL: 1000 ppm | STEL: 1000 ppm |

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

Wear suitable gloves. Impervious gloves.

Skin and body protection

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.

Respiratory protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state

Liquid

Appearance

aqueous solution

Color

colorless

Odor No information available
 Odor threshold No information available

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|---|-------------------|-------------------------|
| pH | 9.6 - 9.8 | None known |
| Melting point / freezing point | No data available | None known |
| Initial boiling point and boiling range | No data available | None known |
| Flash point | = 26 °C / 78.8 °F | None known |
| Evaporation rate | No data available | None known |
| Flammability | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability or explosive limits | No data available | |
| Lower flammability or explosive limits | No data available | |
| Vapor pressure | No data available | None known |
| Relative vapor density | No data available | None known |
| Relative density | No data available | None known |
| Water solubility | No data available | None known |
| Solubility in other solvents | No data available | None known |
| Partition coefficient | No data available | None known |
| Autoignition temperature | 248 °C / 478.4 °F | None known |
| Decomposition temperature | No data available | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |

| <u>Other information</u> | | |
|--------------------------|--------------------------|--|
| Explosive properties | No information available | |
| Oxidizing properties | No information available | |
| Softening point | No information available | |
| Molecular weight | No information available | |
| VOC Content (%) | No information available | |
| Liquid Density | No information available | |
| Bulk density | No information available | |

10. Stability and reactivity

| | |
|------------------------------------|---|
| Reactivity | No information available. |
| Chemical stability | Stable under normal conditions. |
| Possibility of hazardous reactions | None under normal processing. |
| Conditions to avoid | Heat, flames and sparks. |
| Incompatible materials | None known based on information supplied. |
| Hazardous decomposition products | None known based on information supplied. |

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 | Specific test data for the substance or mixture is not available. |
| Skin contact | Specific test data for the substance or mixture is not available. |
| Ingestion | Specific test data for the substance or mixture is not available. |

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

No information available

The following values are calculated based on chapter 3.1 of the GHS document

- ATEmix (oral)** 18,031.70 mg/kg
- ATEmix (dermal)** 13,430.90 mg/kg
- ATEmix (inhalation-dust/mist)** 48.40 mg/l

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|--|----------------------|------------------------|--|
| Ethanol 64-17-5 | = 7060 mg/kg (Rat) | - | = 116.9 mg/L (Rat) 4 h = 133.8 mg/L (Rat) 4 h |
| Sodium Acetate Trihydrate 6131-90-4 | = 3530 mg/kg (Rat) | > 10 g/kg (Rabbit) | > 30 g/m ³ (Rat) 1 h |
| Sodium dodecyl sulfate 151-21-3 | = 1288 mg/kg (Rat) | = 200 mg/kg (Rabbit) | > 3900 mg/m ³ (Rat) 1 h |

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 No information available.

Germ cell mutagenicity No information available.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name | ACGIH | IARC | NTP | OSHA |
|--------------------|-------|---------|-------|------|
| Ethanol 64-17-5 | A3 | Group 1 | Known | X |

Legend

- ACGIH (American Conference of Governmental Industrial Hygienists)**
- A3 - Animal Carcinogen
- IARC (International Agency for Research on Cancer)**
- Group 1 - Carcinogenic to Humans
- NTP (National Toxicology Program)**
- Known - Known Carcinogen
- OSHA (Occupational Safety and Health Administration of the US Department of Labor)**
- X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target organ effects Liver, Respiratory system, Eyes, Skin, Central nervous system, Blood, Reproductive system.

Aspiration hazard No information available.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|--|--|--|----------------------------|--|
| Ethanol 64-17-5 | - | LC50: 12.0 - 16.0mg/L (96h, Oncorhynchus mykiss) LC50: >100mg/L (96h, Pimephales promelas) LC50: 13400 - 15100mg/L (96h, Pimephales promelas) | - | LC50: 9268 - 14221mg/L (48h, Daphnia magna) EC50: =2mg/L (48h, Daphnia magna) |
| Sodium Acetate Trihydrate 6131-90-4 | - | LC50: >100mg/L (96h, Danio rerio) | - | EC50: >1000mg/L (48h, Daphnia magna) |
| Sodium dodecyl sulfate 151-21-3 | EC50: =53mg/L (72h, Desmodesmus subspicatus) EC50: 30 - 100mg/L (96h, Desmodesmus subspicatus) EC50: =117mg/L (96h, Pseudokirchneriella subcapitata) EC50: 3.59 - 15.6mg/L (96h, Pseudokirchneriella subcapitata) | LC50: 15 - 18.9mg/L (96h, Pimephales promelas) LC50: 8 - 12.5mg/L (96h, Pimephales promelas) LC50: 22.1 - 22.8mg/L (96h, Pimephales promelas) LC50: 4.3 - 8.5mg/L (96h, Oncorhynchus mykiss) LC50: =4.62mg/L (96h, Oncorhynchus mykiss) LC50: =4.2mg/L (96h, Oncorhynchus mykiss) LC50: =7.97mg/L (96h, Brachydanio rerio) LC50: 9.9 - 20.1mg/L (96h, Brachydanio rerio) LC50: 4.06 - 5.75mg/L (96h, Lepomis macrochirus) LC50: 4.2 - 4.8mg/L (96h, Lepomis macrochirus) LC50: =4.5mg/L (96h, Lepomis macrochirus) LC50: 5.8 - 7.5mg/L (96h, Pimephales promelas) LC50: 10.2 - 22.5mg/L (96h, Pimephales promelas) LC50: 6.2 - 9.6mg/L (96h, Pimephales promelas) LC50: 13.5 - 18.3mg/L (96h, Poecilia reticulata) LC50: 10.8 - 16.6mg/L (96h, Poecilia reticulata) LC50: =1.31mg/L (96h, Cyprinus carpio) | - | EC50: =1.8mg/L (48h, Daphnia magna) |

Persistence and degradability No information available.

Bioaccumulation

Component Information

| Chemical name | Partition coefficient |
|------------------------------------|-----------------------|
| Ethanol 64-17-5 | -0.35 |
| Sodium dodecyl sulfate 151-21-3 | 1.6 |

Mobility in soil No information available.

Other adverse effects No information available.

13. Disposal considerations

Disposal methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

California waste information This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. Transport information

DOT
Proper shipping name Not restricted
Special Provisions Not restricted
 49 CFR § 173.150 (e)

TDG
UN proper shipping name Not restricted
Special Provisions Not restricted
 SOR/2001-286 1.36 (b)

MEX
UN proper shipping name Not restricted
Special Provisions Not restricted
 144

IATA
UN proper shipping name Not restricted
Special Provisions Not restricted
 144

IMDG
UN proper shipping name Not restricted
Special Provisions Not restricted
 144

RID
UN proper shipping name Not restricted
Special Provisions Not restricted
 144

ADR
UN proper shipping name Not restricted
Special Provisions Not restricted
 144

15. Regulatory information

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

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

- TSCA** Contact supplier for inventory compliance status.
- DSL/NDSL** Contact supplier for inventory compliance status.
- EINECS/ELINCS** Contact supplier for inventory compliance status.
- ENCS** Contact supplier for inventory compliance status.
- IECSC** Contact supplier for inventory compliance status.
- KECL** Contact supplier for inventory compliance status.
- PICCS** Contact supplier for inventory compliance status.
- AIIC** Contact supplier for inventory compliance status.

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
- AIIC** - Australian Inventory of Industrial Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

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 does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

| Chemical name | California Proposition 65 |
|-------------------|-----------------------------|
| Ethanol - 64-17-5 | Carcinogen Developmental |

U.S. State Right-to-Know Regulations

| Chemical name | New Jersey | Massachusetts | Pennsylvania |
|-------------------------------|------------|---------------|--------------|
| RO/DI Water 7732-18-5 | - | - | X |
| Ethanol 64-17-5 | X | X | X |
| Sodium Hydroxide 1310-73-2 | X | X | X |

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

| | | | | |
|----------------------------|--------------------|---------------------------|--------------------|-----------------------|
| NFPA | Health hazards 1 | Flammability 3 | Instability 0 | Special hazards - |
| HMIS | Health hazards * 2 | Flammability 3 | Physical hazards 0 | Personal protection X |
| Chronic Hazard Star Legend | | * = Chronic Health Hazard | | |

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

| | | | |
|---------|-----------------------------|------|----------------------------------|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value | * | Skin designation |

Key literature references and sources for data used to compile the SDS

- Agency for Toxic Substances and Disease Registry (ATSDR)
- U.S. Environmental Protection Agency ChemView Database
- European Food Safety Authority (EFSA)
- EPA (Environmental Protection Agency)
- Acute Exposure Guideline Level(s) (AEGl(s))
- U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
- U.S. Environmental Protection Agency High Production Volume Chemicals
- Food Research Journal
- Hazardous Substance Database
- International Uniform Chemical Information Database (IUCLID)
- National Institute of Technology and Evaluation (NITE)
- Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
- NIOSH (National Institute for Occupational Safety and Health)
- National Library of Medicine's ChemID Plus (NLM CIP)
- National Library of Medicine's PubMed database (NLM PUBMED)
- National Toxicology Program (NTP)
- New Zealand's Chemical Classification and Information Database (CCID)
- Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
- Organization for Economic Co-operation and Development High Production Volume Chemicals Program
- Organization for Economic Co-operation and Development Screening Information Data Set
- World Health Organization

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Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a 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 process, unless specified in the text.

End of Safety Data Sheet