

MATERIAL SAFETY DATA SHEET

Section 1 - Product and Company Identification

Product Identification: Uracil-DNA Glycosylase (UDG)

Date of MSDS: 07/08/2013 **Technical Review Date:** 03/20/2015

FSC: NIIN: EMPTY

Submitter: F BT

Status Code: A

MFN: 01

Article: N

Kit Part: N

Manufacturer's Information

Manufacturer's Name: Genet Bio Co.

Manufacturer's Address1: B-412, Migun Techno World II, Techno2-ro, Yuseong-gu

Manufacturer's Address2: Daejeon

Manufacturer's Country: South Korea

General Information Telephone: 82-0502-523-3484

Emergency Telephone: 82-0502-523-3485

Proprietary: N

Reviewed: Y

Published: Y

Contractor Information

Contractor's Name: Genet Bio

Contractor's Address1: B-412, Migun Techno World II, Techno2-ro, Yuseong-gu

Contractor's Address2: Daejeon, South Korea

Contractor's Telephone: 82-0502-523-3485

Section 2 - Composition/Information on Ingredients

Ingredient Name: ETHYLENEDIAMINETETRAACETIC ACID

Ingredient CAS Number: 60-00-4 **Ingredient CAS Code:** T

RTECS Number: AH4025000 **RTECS Code:** T

=WT: =WT Code:

=Volume: =Volume Code:

>WT: >WT Code:

>Volume: >Volume Code:

<WT: 1. <WT Code: M

<Volume: <Volume Code:

% Low WT: % Low WT Code:

% High WT: % High WT Code:

% Low Volume: % Low Volume Code:

% High Volume: % High Volume Code:

% Text:

% Environmental Weight:

Other REC Limits: N/P

OSHA PEL: N/P

OSHA STEL: N/P

ACGIH TLV: N/P

ACGIH STEL: N/P

GENET Bio

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EPA Reporting Quantity: 5000 LBS
DOT Reporting Quantity: 5000 LBS
Ozone Depleting Chemical: N

Ingredient Name: GLYCERIN
Ingredient CAS Number: 56-81-5 **Ingredient CAS Code:** T
RTECS Number: MA8050000 **RTECS Code:** T
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: 50. **% Low WT Code:** M
% High WT: 60. **% High WT Code:** M
% Low Volume: **% Low Volume Code:**
% High Volume: **% High Volume Code:**
% Text:
% Enviromental Weight:
Other REC Limits: N/P
OSHA PEL: 15 MG/M3 **OSHA PEL Code:** T
OSHA STEL: N/P **OSHA STEL Code:**
ACGIH TLV: 10 MG/M3 **ACGIH TLV Code:** T
ACGIH STEL: NOT ESTABLISHED **ACGIH STEL Code:** T
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical: N

Ingredient Name: TRIS(HYDROXYMETHYL)AMINOMETHANE HYDROCHLORIDE
Ingredient CAS Number: 1185-53-1 **Ingredient CAS Code:** T
RTECS Number: **RTECS Code:** X
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: 1. **% Low WT Code:** M
% High WT: 5. **% High WT Code:** M
% Low Volume: **% Low Volume Code:**
% High Volume: **% High Volume Code:**
% Text:
% Enviromental Weight:
Other REC Limits: N/P
OSHA PEL: N/P **OSHA PEL Code:**
OSHA STEL: N/P **OSHA STEL Code:**
ACGIH TLV: N/P **ACGIH TLV Code:**
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical: N

Ingredient Name: WATER
Ingredient CAS Number: 7732-18-5 **Ingredient CAS Code:** T
RTECS Number: ZC0110000 **RTECS Code:** T

=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: BALANCE
% Enviromental Weight:
Other REC Limits: N/P
OSHA PEL: N/P OSHA PEL Code:
OSHA STEL: N/P OSHA STEL Code:
ACGIH TLV: N/P ACGIH TLV Code:
ACGIH STEL: N/P ACGIH STEL Code:
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical: N

Section 3 - Hazards Identification, Including Emergency Overview

Health Hazards Acute & Chronic: INHALATION: MILD IRRITANT. SKIN/EYES: MAY CAUSE MILD IRRITATION UPON CONTACT. INJECTION: ACCIDENTAL INJECTION OF THIS PRODUCT, VIA LACERATION/PUNCTURE BY A CONTAMINATED OBJECT, MAY CAUSE LOCAL REDDENING, TISSUE SWELLING/INFLAMMATION & DISCOMFORT IN ADDITION TO THE WOUND.

Signs & Symptoms of Overexposure:

IRRITATION, HEADACHE, VOMITING, NAUSEA, REDDENING OF SKIN, TISSUE SWELLING, DISCOMFORT, INFLAMMATION

Medical Conditions Aggravated by Exposure: N/P

LD50 LC50 Mixture: N/P

Route of Entry Indicators:

Inhalation: YES

Skin: YES

Ingestion: NO

Carcenogenicity Indicators

NTP: NO

IARC: NO

OSHA: NO

Carcinogenicity Explanation: N/P

Section 4 - First Aid Measures

First Aid:

SKIN: FLUSH W/RUNNING WATER. EYES: OPEN VICTIM'S EYES WHILE GENTLY RUNNING WATER. HAVE VICTIM ROLL EYES, CONTINUE FLUSHING FOR 15 MINS. INHALATION: REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION TO SUPPORT VITAL FUNCTIONS. INGESTION: DON'T INDUCE VOMITING. VICTIM SHOULD DRINK MILK, EYE WHITES/LARGE QUANTITIES OF WATER. NEVER INDUCE VOMITING/GIVE DILUENTS TO SOMEONE WHO IS UNCONSCIOUS, HAVING CONVULSIONS/UNABLE TO SWALLOW. OBTAIN MEDICAL ATTENTION IN ALL CASES.

Section 5 - Fire Fighting Measures

Fire Fighting Procedures:

FIRE RESPONDERS SHOULD WEAR EYE PROTECTION. FIRE FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS & FULL PROTECTIVE EQUIPMENT. PREVENT RUNOFF WATER FROM ENTERING STORM DRAIN BODIES OF WATER/OTHER ENVIRONMENTAL SENSITIVE AREAS.

Unusual Fire or Explosion Hazard:

WHEN INVOLVED IN A FIRE. THIS MATERIAL MAY DECOMPOSE & PRODUCE IRRITATING FUMES & TOXIC GASES W/CO, CO₂, AMMONIA, HYDROGEN CHLORIDE & OXIDES OF NITROGEN.

Extinguishing Media:

WATER SPRAY, CO₂, DRY CHEMICAL, HALON, FOAM & ANY ABC CLASS.

Flash Point: **Flash Point Text:** Above 100°C

Autoignition Temperature:

Autoignition Temperature Text: N/A

Lower Limit(s): N/A

Upper Limit(s): N/A

Section 6 - Accidental Release Measures

Spill Release Procedures:

SMALL: USE GLOVES, LAB COAT & EYE PROTECTION. ABSORB LIQUID W/PAPER TOWELS. WASH AREA W/SOAP & WATER. LARGE: USE PRE-PLANNED PROCEDURES. PROPER PROTECTIVE EQUIPMENT SHOULD BE USED. CLEAR THE AFFECTED AREA, PROTECT PEOPLE, & RESPOND W/TRAINED PERSONNEL.

Section 7 - Handling and Storage

Spill Release Procedures: AVOID PHYSICAL CONTACT & DUST DURING REMOVAL. USE NORMAL CLEAN-UP PROCEDURES & WASH THOROUGHLY W/WATER.

Waste Disposal Methods: FLUSH IN SEWERAGE SYSTEM W/WATER IAW/FEDERAL, STATE & LOCAL REGULATIONS.

Handling And Storage Precautions: NONE

Other Precautions: NONE

Section 8 - Exposure Controls & Personal Protection

Respiratory Protection:

MAINTAIN AIRBORNE CONTAMINANT CONCENTRATIONS BELOW LIMITS. IF RESPIRATORY PROTECTION IS NEEDED, USE ONLY PROTECTION AUTHORIZED IN 29 CFR 1910.134/APPLICABLE STATE REGULATIONS. USE SUPPLIED AIR RESPIRATION PROTECTION IF OXYGEN LEVELS ARE BELOW 19.5%/ARE UNKNOWN.

Ventilation:

USE W/ADEQUATE VENTILATION.

Protective Gloves:

RUBBER, NEOPRENE, NITRILE RUBBER

Eye Protection: SPLASH GOGGLES/SAFETY GLASSES

Other Protective Equipment: BODY PROTECTION SUCH AS LAB COAT

Work Hygienic Practices: REMOVE/LAUNDER CONTAMINATED CLOTHING & SHOES BEFORE REUSE.

Supplemental Health & Safety Information: MAKE CERTAIN THAT APPLICATION EQUIPMENT IS LOCKED & TAGGED-OUT SAFELY, AS APPLICABLE. ALWAYS USE THIS PRODUCT IN AREAS WHERE ADEQUATE VENTILATION IS PROVIDED. DECONTAMINATE EQUIPMENT USING SOAPY WATER BEFORE MAINTENANCE BEGINS. COLLECT ALL RINSATES & DISPOSE OF ACCORDINGLY.

Section 9 - Physical & Chemical Properties

HCC:

NRC/State License Number:

Net Property Weight for Ammo:

Boiling Point: =100.C, 212.F **Boiling Point Text:** N/P

Melting/Freezing Point: =0.C, 32.F **Melting/Freezing Text:** N/P

Decomposition Point: Decomposition Text: N/P

Vapor Pressure: 18 **Vapor Density:** N/P

Percent Volatile Organic Content:

Specific Gravity: 1

Volatile Organic Content Pounds per Gallon:

pH: 6-8

Volatile Organic Content Grams per Liter:

Viscosity: N/P

Evaporation Weight and Reference: (N-BU-ACETATE=1): 1

Solubility in Water: COMPLETE

Appearance and Odor: CLEAR COLORLESS LIQUIDS

Percent Volatiles by Volume: N/P

Corrosion Rate: N/P

Section 10 - Stability & Reactivity Data

Stability Indicator: YES

Materials to Avoid:

STRONG OXIDIZERS, SUBSTANCES WHICH INCOMPATIBLE W/WATER.

Stability Condition to Avoid: N/P

Hazardous Decomposition Products:

CO₂, CO, OXIDES OF NITROGEN

Hazardous Polymerization Indicator: NO

Conditions to Avoid Polymerization: N/P

Section 11 - Toxicological Information

Toxicological Information:

THIS PRODUCT IS NOT REPORTED TO PRODUCE MUTAGENIC, EMBRYOTOXIC, TERATOGENIC/ADVERSE REPRODUCTIVE EFFECTS IN HUMANS.

Section 12 - Ecological Information

Ecological Information:

THE CHEMICALS IN THIS PRODUCT'S SOLUTIONS WILL DEGRADE IN THE ENVIRONMENT INTO ORGANIC & INORGANIC CONSTITUENTS. NO UNUSUAL EFFECTS ON PLANTS/ANIMALS ARE EXPECTED IF THIS PRODUCT IS RELEASED INTO THE ENVIRONMENT. THIS PRODUCT IS NOT KNOWN TO CAUSE ADVERSE EFFECTS ON AQUATIC LIFE.

Section 13 - Disposal Considerations

Waste Disposal Methods:

IF PRODUCT IS UNALTERED BY USE, MAY BE DISPOSED OF BY TREATMENT AT A PERMITTED FACILITY/AS ADVISED BY YOUR LOCAL HAZARDOUS WASTE REGULATORY AUTHORITY.

Section 14 - MSDS Transport Information

Transport Information: N/P

Section 15 - Regulatory Information

SARA Title III Information:

ETHYLENEDIAMINETETRAACETIC ACID (EDTA): IS SUBJECT TO SECTION 304 REPORTING REQUIREMENTS UNDER THE SUPERFUND AMENDMENT & REAUTHORIZATION ACT. THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY LIST.

Federal Regulatory Information: N/P

State Regulatory Information: N/P

Section 16 - Other Information

Other Information: N/P

HAZCOM Label Information

Product Identification: PRIME TAQ DNA POLYMERASE ETC.

Assigned Individual: Y

Company Name: Genet Bio

Health Emergency Telephone: +82-0502-523-3484

Label Required Indicator: N

Date Label Reviewed: 01/21/2006

Status Code: A

Manufacturer's Label Number:

Date of Label:

Year Procured: N/K

Organization Code: G

Chronic Hazard Indicator: N/P

Eye Protection Indicator: N/P

Skin Protection Indicator: N/P

Respiratory Protection Indicator: N/P

Signal Word: N/P

Health Hazard:

Contact Hazard:

Fire Hazard:

Reactivity Hazard: