

# SAFETY DATA SHEET

Cat# BN00605, GenieProbe NADH Fluorometric Assay Kit

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** GenieProbe NADH Fluorometric Assay Kit  
**PRODUCT CODES:** Cat# BN00605  
**MANUFACTURER:** Assay Genie (brand of Reagent Genie Ltd.)  
**ADDRESS:** G1 The Steelworks, Foley Street, Dublin 1  
**EMERGENCY PHONE:** +353 1 8879802

## SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
NADH Extraction Buffer	Proprietary Buffer	50 ml	No hazards
NADH Cycling Buffer	Proprietary Buffer (contains Ethanol)	15 ml	See below
GenieProbe (DMSO)	In DMSO	0.4 ml	See below
NADH Cycling Enzyme Mix	Lyophilized	1 vial	No hazards
NADH Standard	Lyophilized	1 vial	No hazards

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
Ethanol	64-17-5	200-578-6	46.07	C <sub>2</sub> H <sub>6</sub> O
DMSO	67-68-5	200-664-3	78.13	C <sub>2</sub> H <sub>6</sub> OS

### Ethanol:

#### Emergency Overview

**OSHA Hazards:** Highly flammable liquid, Target organ effect, Irritant, Carcinogen

**Target Organs:** Nerves, Liver, Heart

**GHS Classification:** Flammable liquids (Category 2)  
Skin irritation (Category 2)  
Eye irritation (Category 2B)  
Specific target organ toxicity – single exposure (Category 3)

#### GHS Label elements, including precautionary statements

**Pictogram:** none

**Signal word:** none

**Hazard statement(s):** none

**Precautionary statement(s):** none

#### HMIS Classification

**Health hazard:** 2

**Chronic health hazard:** \*

**Flammability:** 3

**Physical hazards:** 0

#### NFPA Rating

**Health Hazard:** 2

**Fire:** 3

**Reactivity Hazard:** 0

#### Potential Health Effects

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** May be harmful if swallowed.

### DMSO:

#### Emergency Overview

**OSHA Hazards:** Combustible liquid, Target organ effect

**Target Organs:** Eyes, Skin

**GHS Classification:** Flammable liquids (Category 4)

**GHS Label elements, including precautionary statements**

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Pictogram: none  
Signal word: Warning  
Hazard statement(s): H227 Combustible liquid  
Precautionary statement(s): none

## HMIS Classification

Health hazard: 0  
Chronic Health Hazard: \*  
Flammability: 2  
Physical hazards: 0

## NFPA Rating

Health hazard: 0  
Fire: 2  
Reactivity Hazard: 0

## Potential Health Effects

**Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes:** May cause eye irritation.

**Ingestion:** May be harmful if swallowed.

**Aggravated Medical Condition:** Avoid contact w/DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

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## SECTION 4: FIRST AID MEASURES

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**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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## SECTION 5: FIRE-FIGHTING MEASURES

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### Ethanol:

**Condition of flammability:** Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions— see section 10.

### DMSO:

**Suitable extinguishing media:** For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions – see section 10.

**Further information:** Use water spray to cool unopened containers.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**Personal precautions:** Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up:** Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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## SECTION 7: HANDLING AND STORAGE

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### **Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

### **Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: -20 °C.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Ethanol:

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Components	CAS-No.	Value	Control parameters	Basis
Ethanol	64-17-5	TWA	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks: Upper respiratory tract irritation. Confirmed animal carcinogen with unknown relevance to humans.				
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	USA. OSHA: TABLE Z-1 Limits for Air Contaminants – 1910.1000
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA): Table Z-1 Limits for Air Contaminants
The value in mg/m <sup>3</sup> is approximate.				
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	USA. NIOSH recommended exposure limits

### DMSO:

Components	CAS-No.	Value	Control parameters	Basis
Dimethyl sulfoxide	67-68-5	TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Eye protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	DMSO	Ethanol
Appearance:	Clear liquid	Clear liquid
pH:	No data available	No data available
Water Solubility:	Completely miscible	Completely soluble
Other Solubility:	No data available	No data available
Boiling Point (°C):	189 °C (372 °F)	78-80 °C (172.4-176 °F)
Melting Point (°C):	16-19 °C (61-66 °F)	-144 °C (-227.2 °F)
Flash Point (°C):	87 °C (189 °F)	14 °C (57.2 °F)
Ignition Temperature (°C):	301 °C (574 °F)	363 °C (685°F)
Density:	1.1 g/ml	0.79 g/cm <sup>3</sup>

## SECTION 10: STABILITY AND REACTIVITY

Property	DMSO	Ethanol
Chemical stability:	Stable under recommended storage conditions	
Conditions to avoid:	Heat, flames, sparks	Heat, flames, sparks, direct sunlight
Materials to avoid:	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents	Alkali metals, ammonia, oxidizing agents, peroxides
Hazardous decomposition products:	Carbon oxides, sulfur oxides	Carbon oxides

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## SECTION 11: TOXICOLOGICAL INFORMATION

### Ethanol:

**Acute toxicity:** LD50 Oral – rat – 7,060 mg/kg □ Remarks: Lungs, thorax, or respiration : other changes

LC50 Inhalation – rat – 10 h – 20000 ppm

**Skin corrosion/irritation:** Skin – rabbit – irritating to skin – 24 h

**Serious eye damage/eye irritation:** Eyes – rabbit – mild eye irritation – 24 h (Draize test)

**Respiratory or skin sensitization:** no data available

**Germ cell mutagenicity:** no data available

**Carcinogenicity:** Carcinogenicity – mouse – oral □ Tumorigenic: equivocal tumorigenic agent by RTECS criteria. Liver: tumors. Blood: Lymphomas including Hodgkin's disease.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** Reproductive toxicity – human – female – oral □ Effects on newborn: apgar score (human only), other neonatal measures or effects, and drug dependence.

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** Inhalation – may cause respiratory irritation.

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:** no data available

### **Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** May be harmful if swallowed.

**Signs and Symptoms of Exposure:** Exposure may cause central nervous system depression, narcosis, and/or damage to the heart. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: KQ6300000

### DMSO:

**Acute toxicity:** LD50 Oral - rat - 14,500 mg/kg

LC50 Inhalation - rat - 4 h - 40250 ppm

LD50 Dermal - rabbit - > 5,000 mg/kg

**Skin corrosion/irritation:** no data available

**Serious eye damage/eye irritation:** no data available

**Respiratory/skin sensitization:** no data available

**Germ cell mutagenicity:** Genotoxicity in vitro - mouse – lymphocyte □ Cytogenetic analysis

Genotoxicity in vitro - mouse – lymphocyte □ Mutation in mammalian somatic cells.

Genotoxicity in vivo - rat – Intraperitoneal □ Cytogenetic analysis

Genotoxicity in vivo - mouse – Intraperitoneal □ DNA damage

**Carcinogenicity:** Carcinogenicity – rat – Oral □ Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin & Appendages: Other: Tumors.

Carcinogenicity – mouse – Oral □ Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin & Appendages: Other: Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** Reproductive toxicity – rat – Intraperitoneal □ Effects on Fertility: Abortion.

Reproductive toxicity – rat – Intraperitoneal □ Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity – rat – Subcutaneous □ Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).

Reproductive toxicity – mouse – Oral □ Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

**Teratogenicity:** Developmental Toxicity – mouse – Intraperitoneal □ Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

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Signs and Symptoms of Exposure: Exposure via ingestion may cause nausea, fatigue, headache.

Additional Information: RTECS: PV6210000

## SECTION 12: ECOLOGICAL INFORMATION

### DMSO:

Persistence and degradability: no data available

Toxicity: Toxicity to fish: LC50 – Pimephales promelas (fathead minnow) – 34,000 mg/l – 96 h

LC50 – Oncorhynchus mykiss (rainbow trout) – 35,000 mg/l – 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 – Daphnia pulex (Water flea) – 27,500 mg/l

Toxicity to algae: EC50 – Lepomis macrochirus (Bluegill) – >400,000 mg/l – 96 h

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

## SECTION 13: DISPOSAL CONSIDERATIONS

Product: Observe all federal, state, and local environmental regulations.

Contaminated packaging: Dispose of as unused product.

## SECTION 14: TRANSPORT INFORMATION

### Ethanol:

DOT (US): UN-number: 1170, Class: 3, Packing group: II; Proper shipping name: Ethanol; Marine pollutant: No; Poison inhalation hazard: No

IMDG: UN-number: 1170, Class: 3, Packing group: II; EMS-No: F-E, S-D; Proper shipping name: ETHANOL; Marine pollutant: No

IATA: UN-number: 1170, Class: 3, Packing group: II; Proper shipping name: Ethanol

### DMSO:

DOT (US): UN-Number: 1993, Class: CBL, Packing group: III; Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide); Marine pollutant: No; Poison Inhalation Hazard: No

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

## SECTION 15: REGULATORY INFORMATION

OSHA Hazards: Ethanol: Highly flammable liquid, Target organ effect, Irritant, Carcinogen

DMSO: Combustible liquid, Target organ effect

SARA 302 Components: SARA 302: No chemical in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Ethanol: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

DMSO: Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components: Ethanol, CAS-No. 64-17-5, Revision Date: 2007-03-01

Pennsylvania Right To Know Components: Ethanol, CAS-No. 64-17-5, Revision Date: 2007-03-01

Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01

New Jersey Right To Know Components: Ethanol, CAS-No. 64-17-5, Revision Date: 2007-03-01

Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01

California Prop. 65 Components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

### EU regulations

Component	Risk Phrases	Safety Phrases
Ethanol	R11, R20/21/22	S16, S36/37/39, S45
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45

## SECTION 16: OTHER INFORMATION

### DISCLAIMER:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Assay Genie shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.