SAFETY DATA SHEET

Cat# BN00885, Ascorbic Acid Colorimetric/Fluorometric Assay Kit

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Ascorbic Acid Colorimetric/Fluorometric Assay Kit**

PRODUCT CODES: **Cat# BN00885**

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

Product Name/Chemical Name	Description	Amount	Safety Information
Ascorbic Acid Assay Buffer	Proprietary Buffer	25 ml	No hazards
Ascorbic Acid Probe	in DMSO	0.2 ml	See below
Catalyst	contains <2% CuCl2	0.5 ml	See below
Ascorbic Acid Enzyme Mix	Lyophilized	n/a	No hazards
Ascorbic Acid Standard	Lyophilized	n/a	No hazards

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
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.

Cupric Chloride:

Emergency Overview
OSHA Hazards: **Target Organ Effect**
Target Organs: **Eyes, Skin**
GHS Classification: Corrosive to metals (Category 1),Acute toxicity, Oral (Category 4), Acute toxicity, Dermal (Category 4), Skin irritation (Category 2), Serious eye damage (Category 1), Acute aquatic toxicity (Category 1), Chronic aquatic toxicity (Category 2)
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: 0
Physical hazards: 0

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NFPA Rating
Health hazard: 2
Fire: 0
Reactivity Hazard: 0
Potential Health Effects
Ingestion: May be harmful if swallowed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	MW	Concentration	Chemical Formula
DMSO	67-68-5	200-664-3	78.13	neat	C_2H_6OS
Cupric chloride dihydrate	10125-13-0	231-210-2	170.48	2%	Cl2Cu · 2H2O

SECTION 4: FIRST AID MEASURES

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.
In case of skin contact: Wash off with soap and plenty of water.
In case of eye contact: Flush eyes with water as a precaution.
If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

5: FIRE-FIGHTING MEASURES

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid dust formation. Avoid breathing vapors, mist, gas, or dust. Ensure adequate ventilation.
Environmental precautions: Do not let product enter drains.
Methods for cleaning up: Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: 15-25 °C

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

DMSO:

Components	CAS-No.	Value	Control parameters	Basis
Dimethyl sulfoxide	67-68-5	TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)
Copper(II) chloride dihydrate	10125-13-0	TWA	1 mg/m3	USA. NIOSH Recommended Exposure Limits

Personal protective equipment

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dust are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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

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

Skin and body protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Hygiene measures

General industrial hygiene practice.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	DMSO	Cupric Chloride
Appearance:	Clear liquid	dark blue crystals
pH:	No data available	3.0-3.8
Water Solubility:	Completely miscible	no data available
Other Solubility:	No data available	no data available
Specific Gravity (g/ml):	189 ºC (372 ºF)	2.51 g/cm3
Boiling Point (°C):	16-19 ºC (61-66 ºF)	no data available
Melting Point (°C):	87 ºC (189 ºF)	no data available
Flash Point (°C):	301 ºC (574 ºF)	no data available
Ignition Temperature (°C):	1.1 g/ml	no data available

SECTION 10: STABILITY AND REACTIVITY

Property	DMSO	Cupric Chloride
Chemical stability	Stable under recommended storage conditions	
Conditions to avoid:	Heat, flames, sparks	Heat Exposure to moisture
Materials to avoid:	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents	Alkali metals
Hazardous decomposition products:	Carbon oxides, sulfur oxides	N/A

SECTION 11: TOXICOLOGICAL INFORMATION

Cupric Chloride:

Acute toxicity LD50 Oral - Rat - 336 mg/kg
Inhalation: No data available
LD50 Dermal - Rat - male - > 2,000 mg/kg
LD50 Dermal - Rat - female - 1,224 mg/kg
Skin corrosion/irritation Skin - Rabbit Result: Irritating to skin.
Serious eye damage/eye irritation Eyes - Rabbit Result: Risk of serious damage to eyes.
Respiratory or skin sensitisation No data available
Germ cell mutagenicity No data available
Carcinogenicity

- 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 No data available
Specific target organ toxicity - single exposure No data available
Specific target organ toxicity - repeated exposure No data available
Aspiration hazard No data available
Additional Information RTECS: GL7030000
Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue.Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis., Symptoms observed shortly before death were: Shock, renal failure

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

Cupric Chloride:
Toxicity to fish: Toxicity to fish LC50 - Cyprinus carpio (Carp) - 0.12 - 0.23 mg/l - 96.0 h
LC50 - Lepomis macrochirus - 0.9 mg/l - 96.0 h
NOEC - Ictalurus punctatus - 0.013 mg/l - 60 d
Toxicity to daphnia and other aquatic invertebrates No data available
Toxicity to algae No data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

Product: Observe all federal, state, and local environmental regulations.
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

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.

Cupric Chloride:

DOT (US) UN number: 2802 Class: 8 Packing group: III
Proper shipping name: Copper chloride
Reportable Quantity (RQ): 10 lbs
Poison Inhalation Hazard: No
IMDG UN number: 2802 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: COPPER CHLORIDE
Marine pollutant: yes
IATA UN number: 2802 Class: 8 Packing group: III
Proper shipping name: Copper chloride

SECTION 15: REGULATORY INFORMATION

OSHA Hazards: 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: Copper(II) chloride dihydrate CAS-No. 10125-13-0 Revision Date 1993-04-24
SARA 311/312 Hazards: Cupric Dichloride: Acute Health Hazard
DMSO: Fire Hazard, Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components: Copper(II) chloride dihydrate CAS-No. 10125-13-0 Revision Date 1993-04-24
Pennsylvania Right To Know Components: Copper(II) chloride dihydrate CAS-No. 10125-13-0 Revision Date 1993-04-24
New Jersey Right To Know Components: Copper(II) chloride dihydrate CAS-No. 10125-13-0 Revision Date 1993-04-24
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
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45
Copper(II) chloride dihydrate	R24/25	S20, S37, S44

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:
PREPARATION 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.