Cat# BN00736 Cobalt Colorimetric Assay Kit

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Cobalt Assay Kit**

PRODUCT CODES: Cat# BN00736

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
Cobalt Reagent	Contains Sodium Borate Decahydrate and β-Mercaptoethanol	1 ml	See below
Cobalt Chloride Standard	Contains cobalt dichloride >1%	1 vial	See below

Cobalt dichloride: **Emergency Overview**

GHS Classification: Acute toxicity, Oral (Category 4), H302

> Respiratory sensitisation (Category 1), H334 Skin sensitisation (Category 1), H317 Germ cell mutagenicity (Category 2), H341 Carcinogenicity (Category 1B), H350 Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Danger

Hazard statement(s): H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s): P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position

comfortable for breathing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P321 Specific treatment (see supplemental first aid instructions on this label).

P330 Rinse mouth.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

P391 Collect spillage. P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 2

Chronic health hazard: * Flammability: 0 Physical hazards: 0

Cat# BN00736 Cobalt Colorimetric Assay Kit

NFPA Rating

Health Hazard: 2

Fire: 0

Reactivity Hazard: 0

BME:

Emergency Overview

OSHA Hazards: Combustible liquid, Toxic by inhalation, Toxic by ingestion, Highly toxic by skin absorption, Skin sensitizer, Corrosive,

Mutagen

Other hazards which do not result in classification: Stench, Rapidly absorbed through skin

GHS Classification: Flammable liquids (Category 4)

Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 2)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Skin sensitization (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram:



Signal word: Danger

Hazard statement(s): H227 Combustible liquid. H301 Toxic if swallowed.

H310+H330 Fatal in contact with skin or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction. H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s): P210 Keep away from heat/sparks/open flames/hot surfaces - no smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P284 Wear respiratory protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

HMIS Classification

Health hazard: 3 Chronic health hazard: * Flammability: 2 Physical hazards: 0

NFPA Rating

Health Hazard: 3

Fire: 2

Reactivity Hazard: 0
Potential Health Effects

Inhalation: Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin: May be fatal if absorbed through skin. Causes skin burns.

Eyes: Causes eye burns. **Ingestion:** Toxic if swallowed.

Sodium Borate Decahydrate:

Emergency Overview

GHS Classification: Reproductive toxicity (Category 1B), H302

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Danger

Cat# BN00736 Cobalt Colorimetric Assay Kit

Hazard statement(s): H360 May damage fertility or the unborn child. **Precautionary statement(s):** P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P281 Use personal protective equipment as required.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification Health hazard: 1

Chronic health hazard: *
Flammability: 0
Physical hazards: 0
NFPA Rating
Health Hazard: 0

Health Haza

Reactivity Hazard: 0

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
Cobalt dichloride	7646-79-9			
β-mercaptoethanol (BME)	60-24-2	200-464-6	78.13	C2H6OS
Sodium Borate Decahydrate	1303-96-4		381.37	B4Na2O7 · 10H2O

SECTION 4: FIRST AID MEASURES

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: DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a

physician.

SECTION 5: FIRE-FIGHTING MEASURES

BME:

Conditions 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 firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products: Hazardous combustion products formed under fire conditions - no data available.

Further information: Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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. Discharge into the environment must be avoided.

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

SECTION 7: HANDLING AND STORAGE

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.

Conditions for safe storage

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

Recommended storage temperature: -20 °C

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

BME:

Components	CAS-No.	Value	Control parameters	Basis	

Cat# BN00736 Cobalt Colorimetric Assay Kit

2-Mercaptoethanol	60-24-2	TWA	0.2 ppm	USA. Workplace Environmental Exposure Levels (WEEL)
Remarks:	Skin			

Sodium Borate Decahydrate:

Components	CAS-No.	Value	Control parameters	Basis	
Sodium Borate Decahydrate	1303-96-4	TWA	0.2 ppm	USA. Workplace Environmental Exposure Levels (WEEL)	
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen varies			
	Remarks				
		STEL	6.000000	USA. ACGIH Threshold Limit Values	
		OTEL	mg/m3	(TLV)	
				spiratory Tract irritation	
			Not classifiabl	e as a human carcinogen	
				varies	
		TWA	5.000000	USA. NIOSH Recommended	
			mg/m3	Exposure Limits	
		TWA	2.000000	USA. ACGIH Threshold Limit Values	
		mg/m3 (TLV)			
		Upper Respiratory Tract irritation			
		Not classifiable as a human carcinogen varies			
		STEL	6.000000	USA. ACGIH Threshold Limit Values	
		mg/m3 (TLV) Upper Respiratory Tract irritation			
		Not classifiable as a human carcinogen			
			1 000000	varies	
		TWA	2.000000	USA. ACGIH Threshold Limit Values	
		mg/m3 (TLV) Upper Respiratory Tract irritation			
		Not classifiable as a human carcinogen varies 6.000000 USA, ACGIH Threshold Limit Values			
		STEL	mg/m3	(TLV)	
				\ \ /	
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen varies			

Cobalt dichloride:

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

Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Cobalt dichloride	ВМЕ	Sodium Borate Decahydrate
Appearance:	Powder	Yellow liquid	crystalline
pH:	No data available	4.5-6	No data available
Water Solubility:	No data available	Soluble	No data available

Cat# BN00736 Cobalt Colorimetric Assay Kit

Othor Colubility	No data available	No data available	No data available
Other Solubility:	ino data avallable	No data avallable	No data available
Boiling Point (°C):	No data available	157 °C (315 °F)	No data available
Melting Point (°C):	No data available	< -50 °C (< -58 °F)	No data available
Flash Point (°C):	No data available	68 °C (154 °F)	No data available
Ignition Temperature (°C):	No data available	295 °C (563 °F)	No data available
Density:	No data available	1.114 g/ml	No data available

SECTION 10: STABILITY AND REACTIVITY

Property	Cobalt dichloride	ВМЕ	Sodium Borate Decahydrate
Chemical stability:	Stable under recommended storage conditions		
Conditions to avoid:	No data available	Heat, flames, sparks	No data available
Materials to avoid:	Oxidizing agents, Alkali metals	Metals, oxidizing agents	Strong oxidizing agents, Strong reducing agents
Hazardous decomposition products:	No data available	Carbon oxides, sulfur oxides	No data available

SECTION 11: TOXICOLOGICAL INFORMATION

Cobalt dichloride:

Acute toxicity: LD50 Oral - rat - 418 mg/kg

Inhalation: no data available Dermal: no data available

Skin corrosion/irritation: no data available Serious eye damage/eye irritation: Eyes - rabbit

Result: Risk of serious damage to eyes. (OECD Test Guideline 405)

Respiratory or skin sensitization: no data available

Germ cell mutagenicity:

Human HeLa cell DNA inhibition Carcinogenicity:

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Cobalt dichloride)

2B - Group 2B: Possibly carcinogenic to humans (Cobalt dichloride)

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 Reproductive toxicity - mouse - Oral

Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count). Paternal Effects: Testes, epididymis, sperm duct. Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

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

Aspiration hazard: no data available
Synergistic effects: no data available
Additional information: RTECS: GF9800000

Blood disorders, Cough, Shortness of breath, Headache, Nausea, Vomiting

Stomach - Irregularities - Based on Human Evidence Stomach - Irregularities - Based on Human Evidence

BME:

Acute toxicity: LD50 Oral - rat - 98-162 mg/kg

LD50 Inhalation – rat – 4 h – 2 mg/l LD50 Dermal – rabbit – 112-224 mg/kg

Skin corrosion/irritation: Skin – rabbit – irritating to skin ☐ Draize Test

Serious eye damage/eye irritation: Eyes – rabbit – risk of serious damage to eyes

Respiratory or skin sensitization: Maximization Test – guinea pig – OECD Test Guideline 406 – May cause sensitization by skin contact.

Germ cell mutagenicity: Experiments showed mutagenic effects in cultured bacterial cells.

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.

Cat# BN00736 Cobalt Colorimetric Assay Kit

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 **Teratogenicity:** no data available

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

Aspiration hazard: no data available

Potential Health Effects

Inhalation: Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin: May be fatal if absorbed through skin. Causes skin burns.

Eyes: Causes eye burns. **Ingestion:** Toxic if swallowed.

Signs and Symptoms of Exposure: Exposure may cause a burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, weakness, unconsciousness. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary

Synergistic effects: no data available Additional information: RTECS: KL5600000

Sodium Borate Decahydrate:

Acute toxicity: LD50 Oral - Rat - 4,500 - 5,000 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - 10,000 mg/kg

No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available Respiratory or skin sensitization: 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: fetotoxicity
Presumed human reproductive toxicant
Presumed human reproductive toxicant
Teratogenicity: no data available

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

Aspiration hazard: no data available

Signs and Symptoms of Exposure: Exposure may cause a burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, weakness, unconsciousness. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema.

Synergistic effects: no data available **Additional information:** RTECS: VZ2275000

Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus, including fetal weight loss and minor skeletal variations. The doses administered were many times in excess of those to which humans would normally be exposed. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. A recent epidemiological study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.

SECTION 12: ECOLOGICAL INFORMATION

Cobalt dichloride:

Persistence and degradability: no data available

Toxicity

Toxicity to fish LC50 - Cyprinus carpio (Carp) - 0.33 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

mortality NOEC - Daphnia - < 0.05 mg/l - 7 d

EC50 - Daphnia magna (Water flea) - 1.1 - 1.6 mg/l - 48 h

Cat# BN00736 Cobalt Colorimetric Assay Kit

Toxicity to algae EC50 - Chlorella vulgaris (Freshwater algae) - 0.52 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: Very toxic to aquatic life with long lasting effects. An environmental hazard cannot be excluded in the event of

unprofessional handling or disposal.

Very toxic to aquatic life.

BME:

Persistence and degradability: Biodegradability ☐ Result: <86% - not readily biodegradable

Result: 6% - not readily biodegradable

Result: aerobic, <10% - not readily biodegradable

Toxicity: Toxicity to fish: LC50 – Leuciscus idus (Golden orfe) – 46-100 mg/l – 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50- Daphnia – 0.89 mg/l – 48 h; Method: OECD Test Guideline 202

Toxicity to algae: LC50 - Bacteria - 125 mg/l - 17 h

Bioaccumulative potential: Does not accumulate in organisms.

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: Biochemical Oxygen Demand (BOD): 105 mg/g; Chemical Oxygen Demand (COD): 1.894 mg/g

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

Sodium Borate Decahydrate:

Persistence and degradability: no data available

Toxicity

Toxicity to fish LC50 - Carassius auratus (goldfish) - 178 mg/l - 72 h

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 1,085 - 1,402 mg/l - 48 h

Toxicity to algae IC50 - Desmodesmus subspicatus (green algae) - 158 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: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Cobalt dichloride:

DOT (US): Not dangerous goods

IMDG: UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt dichloride)

Marine pollutant: Marine pollutant

IATA: UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Cobalt dichloride)

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing

inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

BME:

DOT (US): UN-number: 2966, Class: 6.1, Packing group: II; Proper shipping name: Thioglycol; Marine pollutant: No; Poison Inhalation Hazard:

No

IMDG: UN-number: 2966, Class: 6.1, Packing group: II; EMS-No.: F-A, S-A; Proper shipping name: THIOGLYCOL; Marine pollutant: No

IATA: UN-number: 2966, Class: 6.1, Packing group: II; Proper shipping name: Thioglycol; Marine pollutant: No

Sodium Borate Decahydrate:

DOT (US): Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

SECTION 15: REGULATORY INFORMATION

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

Cat# BN00736 Cobalt Colorimetric Assay Kit

SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313:

Cobalt dichloride, CAS-No. 7646-79-9; Revision Date: 2009-07-17

SARA 311/312 Hazards: Cobalt dichloride: Acute Health Hazard, Chronic Health Hazard

BME: Fire Hazard, Acute Health Hazard

Sodium Borate Decahydrate: Chronic Health Hazard

Massachusetts Right To Know Components: 2-Mercaptoethanol, CAS-No. 60-24-2; Revision Date: 1993-04-24

Sodium Borate Decahydrate: CAS-No. 1303-96-4

Pennsylvania Right To Know Components: Cobalt dichloride, CAS-No. 7646-79-9

2-Mercaptoethanol, CAS-No. 60-24-2; Revision Date: 1993-04-24

Sodium Borate Decahydrate: CAS-No. 1303-96-4

New Jersey Right To Know Components: Cobalt dichloride, CAS-No. 7646-79-9

2-Mercaptoethanol, CAS-No. 60-24-2; Revision Date: 1993-04-24

Sodium Borate Decahydrate: CAS-No. 1303-96-4

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

EU regulations

Component	Risk Phrases	Safety Phrases
Cobalt dichloride		-
BME	R23/24/25, R38, R41, R48/22, R50/53	S24/25, S36/37/39, S46, S57
Sodium Borate Decahydrate		

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.