

SECTION 1: Identification

1.1. Identification

Product name : Drabkin's Microplate Hemoglobin Assay
Product code : 1044

1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only
Restrictions on use : Not for food, drug or household use

1.3. Supplier

Exocell
Ethos Biosciences, Inc.
2070 Center Square Road
Logan Township, New Jersey 08085
United States
T +1-856-224-0900; +1-800-441-0366 Technical Service; Monday-Friday: 8:00 AM-5:00 PM, Eastern US Time
www.ethosbiosciences.com

1.4. Emergency telephone number

Emergency number : 800-424-9300 CHEMTREC (USA) -- 24 Hours/Day, 7 Days/Week

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

99% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)
99% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)
99% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

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3.2. Mixtures

Name	Product identifier	Conc.	GHS US classification
Deionized Water	CAS-No.: 7732-18-5	> 99	Not classified
potassium hexacyanoferrate (III)	CAS-No.: 13746-66-2	≤ 0.02	Not classified
Brij35	CAS-No.: 9002-92-0	≤ 0.015	Not classified
potassium phosphate, monobasic	CAS-No.: 7778-77-0	≤ 0.014	Not classified
potassium cyanide	CAS-No.: 151-50-8	≤ 0.005	Not classified
Hemoglobin Standard, RBC Lysate; 40 mg/mL	-		Not classified

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact	: None under normal conditions.
Symptoms/effects after eye contact	: None under normal conditions.
Symptoms/effects after ingestion	: None under normal conditions.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard	: No fire hazard.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Keep cool. Protect from sunlight.
Packaging materials : Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

potassium hexacyanoferrate (III) (13746-66-2)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	1 mg/m ³
ACGIH OEL C	5 mg/m ³

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potassium cyanide (151-50-8)

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL C	5 mg/m ³
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8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: No data available
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available

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Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

potassium hexacyanoferrate (III)	
Boiling point	Not applicable (decomposes), EU Method A.2: Boiling point
Flash point	Not applicable
Auto-ignition temperature	Not applicable, EU Method A.16: Relative Self-Ignition Temperature for Solids
Vapor pressure	< 0.01 hPa (20 °C)

potassium cyanide	
Boiling point	Not applicable (melting point > 300 °C)
Flash point	Not applicable (solid)
Auto-ignition temperature	Not applicable
Vapor pressure	< 0.1 hPa (20 °C)

potassium phosphate, monobasic	
Boiling point	> 450 °C (1013 hPa, EU Method A.2: Boiling point)
Flash point	Not applicable (solid)
Auto-ignition temperature	Not applicable
Vapor pressure	< 0.01 hPa (25 °C, EU Method A.4: Vapour Pressure)

Brij35	
Boiling point	> 100 °C
Flash point	138 °C (995 hPa)
Vapor pressure	0.0000235 hPa (25 °C, MPBPWin v1.43, EpiSuite)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

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Unknown acute toxicity (GHS US)	99% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral) 99% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal) 99% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))
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potassium hexacyanoferrate (III) (13746-66-2)

LD50 oral rat	> 5110 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))

potassium cyanide (151-50-8)

LD50 oral rat	7.49 mg/kg (Rat, Female, Experimental value, Oral)
LD50 dermal rabbit	14.29 – 22.33 mg/kg (< 6 h, Rabbit, Female, Experimental value, Dermal)
LC50 Inhalation - Rat	0.144 mg/l (Equivalent or similar to OECD 403, 1 h, Rat, Read-across, Inhalation (dust))

potassium phosphate, monobasic (7778-77-0)

LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 0.83 mg/l air (EPA OPP 81-3: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Experimental value, Inhalation (dust), 14 day(s))

Brij35 (9002-92-0)

LD50 oral rat	1000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Skin, 14 day(s))

Skin corrosion/irritation : Not classified

potassium hexacyanoferrate (III) (13746-66-2)

pH	8 (10 %)
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potassium cyanide (151-50-8)

pH	11 (0.65 %)
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potassium phosphate, monobasic (7778-77-0)

pH	4.5 (1 %)
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Serious eye damage/irritation : Not classified

potassium hexacyanoferrate (III) (13746-66-2)

pH	8 (10 %)
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potassium cyanide (151-50-8)

pH	11 (0.65 %)
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potassium phosphate, monobasic (7778-77-0)

pH	4.5 (1 %)
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Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : No data available

potassium hexacyanoferrate (III) (13746-66-2)

Viscosity, kinematic	Not applicable (solid)
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potassium cyanide (151-50-8)

Viscosity, kinematic	Not applicable (solid)
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potassium phosphate, monobasic (7778-77-0)

Viscosity, kinematic	Not applicable (solid)
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Brij35 (9002-92-0)

Viscosity, kinematic	102.159 mm ² /s (20 °C, OECD 114: Viscosity of Liquids)
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Symptoms/effects after inhalation : Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : None under normal conditions.
Symptoms/effects after ingestion : None under normal conditions.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

potassium hexacyanoferrate (III) (13746-66-2)

EC50 - Crustacea [1]	59 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
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EC50 72h - Algae [1]	1.7 mg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)
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potassium cyanide (151-50-8)

LC50 - Fish [1]	98.8 µg/l (ASTM E729-96, 96 h, Gasterosteus aculeatus, Flow-through system, Fresh water, Read-across, Cyanide ion)
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ErC50 algae	0.116 mg/l (ISO 8692, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Cyanide ion)
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potassium phosphate, monobasic (7778-77-0)	
LC50 - Fish [1]	> 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	> 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	> 100 mg/l (EU Method C.3, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)
Brij35 (9002-92-0)	
LC50 - Fish [1]	2.427 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	9.131 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Nominal concentration)
ErC50 algae	0.237 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value)
12.2. Persistence and degradability	
Drabkin's Microplate Hemoglobin Assay	
Persistence and degradability	Not rapidly degradable
Deionized Water (7732-18-5)	
Persistence and degradability	Not rapidly degradable
potassium hexacyanoferrate (III) (13746-66-2)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
potassium cyanide (151-50-8)	
Persistence and degradability	Inherently biodegradable.
Chemical oxygen demand (COD)	0.614 g O ₂ /g substance
BOD (% of ThOD)	0 (7 day(s), Literature study)
potassium phosphate, monobasic (7778-77-0)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
Brij35 (9002-92-0)	
Persistence and degradability	Readily biodegradable in water.
Hemoglobin Standard, RBC Lysate; 40 mg/mL	
Persistence and degradability	Not rapidly degradable

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12.3. Bioaccumulative potential

potassium hexacyanoferrate (III) (13746-66-2)

Bioaccumulative potential	No bioaccumulation data available.
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potassium cyanide (151-50-8)

BCF - Other aquatic organisms [1]	3.162 l/kg (BCFBAF v3.00, Read-across, Fresh weight)
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Partition coefficient n-octanol/water (Log Pow)	-0.25 (Similar product, Literature, 20 °C)
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Bioaccumulative potential	Not bioaccumulative.
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potassium phosphate, monobasic (7778-77-0)

Bioaccumulative potential	Not bioaccumulative.
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Brij35 (9002-92-0)

BCF - Fish [1]	81 l/kg (Pisces, Fresh water, Literature study, Fresh weight)
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Partition coefficient n-octanol/water (Log Pow)	2.26 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 25 °C)
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Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
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12.4. Mobility in soil

potassium hexacyanoferrate (III) (13746-66-2)

Surface tension	No data available in the literature
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Ecology - soil	No (test)data on mobility of the substance available.
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potassium cyanide (151-50-8)

Surface tension	No data available in the literature
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Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.4534 (log Koc, SRC PCKOCWIN v2.0, QSAR)
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Ecology - soil	Highly mobile in soil.
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potassium phosphate, monobasic (7778-77-0)

Surface tension	No data available in the literature
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Ecology - soil	No (test)data on mobility of the substance available.
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Brij35 (9002-92-0)

Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.643 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value)
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Ecology - soil	Highly mobile in soil.
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12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

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Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Not regulated
Proper Shipping Name (TDG) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated

TDG
Transport hazard class(es) (TDG) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT
Not regulated

TDG
Not regulated

IMDG
Not regulated

IATA
Not regulated

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

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SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory, except for:

potassium hexacyanoferrate (III)	CAS-No. 13746-66-2	≤ 0.02%
potassium cyanide	CAS-No. 151-50-8	≤ 0.005%
potassium phosphate, monobasic	CAS-No. 7778-77-0	≤ 0.014%
Brij35	CAS-No. 9002-92-0	≤ 0.015%
Hemoglobin Standard, RBC Lysate; 40 mg/mL	CAS-No.	%

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

Deionized Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Deionized Water (7732-18-5)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

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Safety Data Sheet (SDS), USA

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