Safety Data Sheet
PermaRed/HRP™ (OSHA)

SECTION 1: Identification

1.1 GHS Product identifier

Product name	PermaRed/HRP™ (OSHA)
Product number	K075, K075-110
Brand	PermaRed/HRP™

1.2 Other means of identification

Component 1. K075C (Chromogen)
Component 2. K075B (Buffer)

1.3 Recommended use of the chemical and restrictions on use

For In Vitro Diagnostic use.
Immunohistochemistry
In Situ Hybridization

1.4 Supplier's details

Name	Diagnostic Biosystems
Address	6616 Owens Drive Pleasanton CA 94588 USA
Telephone	(888) 896-3350
email	customersupport@dbiosys.com

1.5 Emergency phone number

(925) 484-3350

SECTION 2: Hazard identification

General hazard statement
For Professional Users Only

2.1 Classification of the substance or mixture

GHS classification in accordance with: Regulation (EC) No 1272/2008 (CLP)

- Acute toxicity, inhalation (chapter 3.1), Cat. 5

- Toxic to reproduction (chapter 3.7), Cat. 1A
- Toxic to reproduction (chapter 3.7), Cat. 1B
- Carcinogenicity (chapter 3.6), Cat. 1B
- Germ cell mutagenicity (chapter 3.5), Cat. 2
- Serious eye damage/eye irritation (chapter 3.3), Cat. 2
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Acute toxicity, dermal (chapter 3.1), Cat. 5
- Acute toxicity, inhalation (chapter 3.1), Cat. 4
- Acute toxicity, oral (chapter 3.1), Cat. 4
- Specific target organ toxicity following repeated exposure (chapter 3.9), Cat. 2
- Specific target organ toxicity following single exposure (chapter 3.8), Cat. 3

2.2 GHS label elements, including precautionary statements

Pictogram

1. Health hazard; 2. Exclamation mark

Signal word **Danger**

Hazard statement(s)

H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H341	Suspected of causing genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell,
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to a licensed disposal company.

2.3 Other hazards which do not result in classification

Do not let product enter drains.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

No data available.

Components

Component 1.
1. 2-METHOXYETHANOL

Concentration	15 - 25 % (volume)
Other names / synonyms	Ethanol, 2-methoxy-; Ethylene glycol monomethyl ether
EC no.	203-713-7
CAS no.	109-86-4
Index no.	603-011-00-4

- Flammable liquids (chapter 2.6), Cat. 3
- Toxic to reproduction (chapter 3.7), Cat. 1B
- Acute toxicity, inhalation (chapter 3.1), Cat. 4
- Acute toxicity, dermal (chapter 3.1), Cat. 4
- Acute toxicity, oral (chapter 3.1), Cat. 4

H226	Flammable liquid and vapor
H302	Harmful if swallowed
H312	Harmful in contact with skin
H332	Harmful if inhaled
H360FD	May damage fertility. May damage the unborn child.

2. N-METHYL-2-PYRROLIDONE

Concentration	20 - 30 % (volume)
Other names / synonyms	2-Pyrrolidinone, 1-methyl-; Methyl pyrrolidone; N-Methylpyrrolidone
EC no.	212-828-1
CAS no.	872-50-4
Index no.	606-021-00-7

- Toxic to reproduction (chapter 3.7), Cat. 1B
- Specific target organ toxicity following single exposure (chapter 3.8), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Serious eye damage/eye irritation (chapter 3.3), Cat. 2

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360D	May damage the unborn child
SCLs/M-factors/ATEs	STOT SE 3; H335: C ≥ 10 %

3. Ethylene glycol

Concentration	20 - 30 % (volume)
Other names / synonyms	1,2-DIHYDROXYETHANE; 1,2-ETHANDIOL; 1,2-Ethanediol; DOWTHERM SR 1; ETHANE-1,2-DIOL; Ethane-1,2-diol, Ethylene glycol; ethanediol; ETHYLENE ALCOHOL; ETHYLENE DIHYDRATE; Ethylene glycol (ingested); ETHYLENEGLYCOL; Glycol; GLYCOL ALCOHOL; LUTROL-9; M.E.G.; MACROGOL 400 BPC; MONOETHYLENE GLYCOL; NCI-C00920; NORKOOL; TESCOL; UCAR 17
EC no.	203-473-3
CAS no.	107-21-1
Index no.	603-027-00-1

- Acute toxicity, oral (chapter 3.1), Cat. 4
- Specific target organ toxicity following repeated exposure (chapter 3.9), Cat. 2

H302	Harmful if swallowed
H373	May cause damage to organs through prolonged or repeated exposure

Component 2.
1. 2-METHOXYETHANOL

Concentration	15 - 25 % (volume)
Other names / synonyms	Ethanol, 2-methoxy-; Ethylene glycol monomethyl ether
EC no.	203-713-7
CAS no.	109-86-4
Index no.	603-011-00-4

- Flammable liquids (chapter 2.6), Cat. 3
- Toxic to reproduction (chapter 3.7), Cat. 1B
- Acute toxicity, inhalation (chapter 3.1), Cat. 4
- Acute toxicity, dermal (chapter 3.1), Cat. 4
- Acute toxicity, oral (chapter 3.1), Cat. 4

H226	Flammable liquid and vapor
H302	Harmful if swallowed
H312	Harmful in contact with skin
H332	Harmful if inhaled
H360FD	May damage fertility. May damage the unborn child.

2. N-METHYL-2-PYRROLIDONE

Concentration	20 - 30 % (volume)
Other names / synonyms	2-Pyrrolidinone, 1-methyl-; Methyl pyrrolidone; N-Methylpyrrolidone
EC no.	212-828-1
CAS no.	872-50-4
Index no.	606-021-00-7

- Toxic to reproduction (chapter 3.7), Cat. 1B
- Specific target organ toxicity following single exposure (chapter 3.8), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Serious eye damage/eye irritation (chapter 3.3), Cat. 2

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360D	May damage the unborn child
SCLs/M-factors/ATEs	STOT SE 3; H335: C ≥ 10 %

3. Reaction mass of: 5-Chloro-2-methyl4- isothiazolin-3-one and 2-Methyl-2H-isothiazol-3-one (3:1)

Concentration	< 0.1 % (volume)
Other names / synonyms	3(2H)-Isothiazolone, 5-chloro-2-methyl-, mixt. with 2-methyl-3(2H)-isothiazolone; Kathon 886;
EC no.	—
CAS no.	55965-84-9
Index no.	613-167-00-5

- Acute toxicity, inhalation (chapter 3.1), Cat. 2
- Acute toxicity, dermal (chapter 3.1), Cat. 2
- Acute toxicity, oral (chapter 3.1), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 1C
- Serious eye damage/eye irritation (chapter 3.3), Cat. 1
- Skin sensitizer (chapter 3.4), Cat. 1A
- Hazardous to the aquatic environment, short-term (acute) (chapter 4.1), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic) (chapter 4.1), Cat. 1

H301	Toxic if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H330	Fatal if inhaled
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
SCLs/M-factors/ATEs	Skin Corr. 1C; : C ≥ ,6 % Skin Irrit. 2; H315: ,06 % ≤ C < ,6 % Eye Dam. 1; : C ≥ ,6 % Eye Irrit. 2; H319: ,06 % ≤ C < ,6 % Skin Sens. 1A; : C ≥ ,0015 % M=100 M=100

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).
If inhaled	Call a poison center or doctor if you feel unwell. Acute and delayed symptoms and effects: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

In case of skin contact	Wash with plenty of soap and water for at least 15 minutes. Call a poison center or doctor if you feel unwell. Acute and delayed symptoms and effects: May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.
In case of eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. Acute and delayed symptoms and effects: May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.
If swallowed	Call a poison center or doctor if you feel unwell. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Acute and delayed symptoms and effects: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Personal protective equipment for first-aid responders
General industrial hygiene practice.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No data available

SECTION 5: Fire-fighting measures

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

5.2 Specific hazards arising from the chemical
Carbon oxides

Reaction mass of: 5-Chloro-2-methyl4- isothiazolin-3-one and 2-Methyl-2H-isothiazol-3-one (3:1) : Carbon oxide. Nitrogen oxides.

Ethylene glycol: No data available.

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

Further information
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protection recommended in Section 8.
As an immediate precautionary measure, isolate spill or leak area in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate enclosed areas.

6.2 Environmental precautions
Do not let product enter drains unless in accordance with Federal, Sate and local laws and regulations.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Specific end use(s)
Apart from the uses mentioned in section 1 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

CAS: 107-21-1 (EC: 203-473-3)
Ethylene glycol
ACGIH (USA): 100 mg/m3 PEL-C inhalation; 100 mg/m3 PEL-C inhalation; 100 mg/m3 PEL-C inhalation;
Cal/OSHA (USA): 40 ppm, 100 mg/m3 PEL-C inhalation

CAS: 109-86-4
2-METHOXYETHANOL
Cal/OSHA: 5 ppm PEL inhalation; NIOSH: 0.1 ppm REL inhalation; OSHA: 25 ppm PEL inhalation; 80 mg/m3 PEL inhalation

8.2 Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms

Eye/face protection
Safety glasses if there is a splash hazard. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Protective gloves. Consult manufacturer specifications for further information.

Body protection
Wear protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Not required under normal use conditions. Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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).

Thermal hazards
No data available.

Control banding approach
No data available.

Environmental exposure controls
Do not let product enter drains.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Transparent
Color	Clear
Odor	None
Odor threshold	No data available.
pH	7.0
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flash point	No data available.
Evaporation rate	No data available.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Vapor pressure	No data available.
Relative vapor density	No data available.
Density and/or relative density	No data available.
Solubility	No data available.
Partition coefficient n-octanol/water (log value)	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Kinematic viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

Particle characteristics
No data available.

Further safety characteristics (supplemental)
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
Contact with incompatible materials. Sources of ignition. Exposure to heat.

10.5 Incompatible materials
Do not store near acids, Strong oxidizing agents, Carbon dioxide (CO2)

Ethylene glycol: Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, Aluminum

10.6 Hazardous decomposition products
Other decomposition products - No data available In the event of fire: see section 5

Ethylene glycol: Hazardous decomposition products formed under fire conditions. - Carbon oxides
In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Likely Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion.

Symptoms (including delayed and immediate effects):
Inhalation: May cause respiratory irritation. Signs/symptoms may include cough, sneezing,nasal discharge, headache, hoarseness, and nose and throat pain.
Ingestion: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

The ATE (dermal) of the mixture is: 4400 mg/kg bw

The ATE (gas inhalation) of the mixture is: 18000 ppmV

The ATE (oral) of the mixture is: 909.09 mg/kg bw

Ethylene glycol
LD50 Oral - Rat - 4,700 mg/kg

Skin corrosion/irritation
May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Ethylene glycol
LD50 Skin - Rabbit - 10,626 mg/kg

Serious eye damage/irritation
May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity
Suspected of causing genetic defects

Carcinogenicity
May cause cancer

Reproductive toxicity
May damage fertility or the unborn child

STOT-single exposure
No data available.

STOT-repeated exposure
No data available.

Aspiration hazard
No data available.

SECTION 12: Ecological information

Toxicity
Ethylene glycol
LC50 - Oncorhynchus mykiss (rainbow trout) - 18,500 mg/l - 96 h

Ethylene glycol
LC50 - Leuciscus idus (golden orfe) - >10,000 mg/l - 48 h
Result: Bioconcentration factor (BCF): 0.60

Ethylene glycol
NOEC - Pimephales promelas (fathead minnow) - 32,000 mg/l - 7 d

Ethylene glycol
NOEC - Pimephales promelas (fathead minnow) - 39,140 mg/l - 96 h

Ethylene glycol
EC50 - Daphnia magna (water flea) - 74,000 mg/l - 24 h

Ethylene glycol
NOEC - Daphnia magna (water flea) - 24,000 mg/l - 48 h

Ethylene glycol
LC50 - Daphnia magna (water flea) - 41,000 mg/l - 48 h

Persistence and degradability
Ethylene glycol

Result: Ratio BOD/ThBOD 0.78 %

Bioaccumulative potential
Ethylene glycol
- other fish - 50 mg/l - 61 d

Mobility in soil
No data available.

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Endocrine disrupting properties
No data available.

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Disposal should be in accordance with applicable Federal, State and local laws and regulations. Local regulations may be more stringent than State or Federal requirements.

Packaging disposal
Dispose of as unused product.

Waste treatment
No data available.

Sewage disposal
Sewage disposal is not recommended

Other disposal recommendations
Offer surplus and non-recyclable solutions to a licensed disposal company.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

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

Chemical name: 2-METHOXYETHANOL
CAS number: 109-86-4
01/01/1989 - Developmental toxicity
01/01/1989 - Male reproductive toxicity

Chemical name: N-METHYL-2-PYRROLIDONE
CAS number: 872-50-4

06/15/2001 - Developmental toxicity

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Ethylene glycol
CAS number: 107-21-1

Chemical name: Ethylene glycol
CAS number: 107-21-1
06/19/2015 - Developmental toxicity

Canadian Domestic Substances List (DSL)
Chemical name: Ethanol, 2-methoxy-
CAS: 109-86-4

Chemical name: 2-Pyrrolidinone, 1-methyl-
CAS: 872-50-4

Chemical name: 1,2-Ethanediol
CAS: 107-21-1

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Chemical name: 2-Methoxyethanol
CAS number: 109-86-4

Chemical name: N-Methyl-2-pyrrolidone
CAS number: 872-50-4

Ethylene glycol
CAS number: 107-21-1

New Jersey Right To Know Components
No components are subject to the New Jersey Right to Know Act.

Common name: 2-METHOXYETHANOL
CAS number: 109-86-4

Common name: 1-METHYL-2-PYRROLIDONE
CAS number: 872-50-4

Ethylene glycol
CAS number: 107-21-1

Pennsylvania Right To Know Components
No components are subject to the Pennsylvania Right To Know Act.

Chemical name: Ethanol, 2-methoxy-
CAS number: 109-86-4

Chemical name: 2-Pyrrolidinone, 1-methyl- 2,beta-butoxyethoxyethyl Chloride
CAS number: 872-50-4

Ethylene glycol
CAS number: 107-21-1

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

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

SARA 311/312 Hazards
No SARA Hazards

Acute Health Hazard, Chronic Health Hazard

SARA 313 Components
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.

The following components are subject to reporting levels established by SARA Title III, Section 313:
Ethylene glycol
CAS number: 107-21-1

HMIS Rating

PermaRed/HRP™ (OSHA)	
HEALTH	* 2
FLAMMABILITY	1
PHYSICAL HAZARD	
PERSONAL PROTECTION	

NFPA Rating

SECTION 16: Other information

SDS-0069, Rev. D

16.1 Further information/disclaimer
DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of information for their particular purposes. In no event shall Diagnostic Biosystems be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, whatsoever arising, even if Diagnostic Biosystems has been advised of the possibility of such damages.