



MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT

Product Name: ECOS™ (*E. coli* One-Step) Transformation Kit

Cat. No.: FYE107, FYE108, FYE109, FYE207, FYE607, FYE678, FYE608, FYE609, FYE610, FYE707, FYE708, FYE709

Store temperature: -70°C

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENT

Strains supplied by Yeastern are all derived of *E. coli* K12, *E. coli* B or hybrids of these two strains. *E. coli* K12 and B are nonpathogenic isolated. K12 is the standard nonpathogenic host, exempt from the NIH Recombinant DNA Advisory Committee (RAC) guideline (1).

E. coli B has also been shown to lack common pathogenicity- related sequences (2).

ECOS™ Competent Cells: 100µl x 10 vials

PUC19 control Plasmid (10⁻⁴ µg/µl): 0.5 ml x 1 vial, a mixture of single strand DNA for enhancing the transformation efficiency.

References :

1. Federal Register, (1986) Vol.V1 : 88,6952-16985.
2. Kuhert , P, Hacker, I Muldorfer, A..P. Burnens, J. Nicolet, and J. Frey (1997). Detection system for *Escherichia coli*-specific virulence genes: absence of virulence determinants in B and C strains. Appl. Environ. Microbiol. 63(2).

SECTION 3 - HAZARDS IDENTIFICATION

Acute Effect:

1. Maybe harmful if swallowed, inhaled or absorbed through skin.
2. Vapor or mist is irritating to the eyes, mucous membranes and upper respiratory tract.
3. Causes skin irritation.

Chronic Effect:

Target Organs: Eyes, Skin

To the best of your knowledge, the chemical, physical have not been thoroughly investigated.

Information pertaining to particular dangers for man and environment: No

Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

NFPA ratings (scale 0-4)

Health= 0

Fire= 0

Reactivity= 0

WHMIS-ratings (scale 0-4)

Health= 0

Fire= 0

Reactivity= 0

SECTION 4 - FIRST AID MEASURES

Oral Exposure:

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure:

If inhaled, remove to fresh air. If breathing is difficult, call a physician.

Dermal Exposure:

In case of contact, immediately wash skin with soap and copious amounts of water. Remove clothing and call a physician.

Eye Exposure:

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

SECTION 5 - FIRE FIGHTING MEASURES

Extinguishing Media:

Water Spray, Carbon Dioxide, Dry Chemical powder or appropriate foam

Special Firefighting Procedures:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosions Hazard(s):

Emit toxic fumes under fire conditions.

Prevent contact with skin and eyes.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Procedure(s) of Personal Precaution(s):

1. Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and chemical resistant gloves.
2. Wear disposable coveralls and discard them after use.

Methods for Cleaning Up:

1. Absorb on sand or vermiculite and place in closed container for disposal.
2. Ventilate area and wash spill site after material pickup is complete.

SECTION 7 - HANDLING AND STORAGE

Storage Pressure:

Ambient

Handling Procedures:

Keep closed or covered when not in use.

Storage Procedures:

Suitable for most general chemical storage areas.

SECTION 8 - EXPOSURE CONTROLS

Engineering Controls:

Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment:

NIOSH/MSHA-approved respirator

General Hygiene Measures:

Wash thoroughly after handling. Wash thoroughly contaminated clothing before used.

Hand:

Compatible chemical-resistant gloves.

EYE:

Compatible safety goggles

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

General Information

Form: Fluid

Color: According to product specification

Odor: Characteristic

pH: 6~7

Change in condition

Melting point: 18.4°C

Boiling point: 189°C

Flash point: 85°C

Auto igniting: 300°C

Explosion Limits in Air:

Lower3.5%

Upper63%

Vapor density: 2.7

Vapor pressure: 0.42mm at 20 °C

Solubility in / Miscibility with

Water: Fully miscible

SECTION 10 - STABILITY AND REACTIVITY

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

Dangerous reaction:

React with acids, alkalis and oxidizing agents.

Dangerous products of decomposition:

No dangerous decomposition products known.

SECTION 11 - TOXICOLOGICAL INFORMATION

Irritation Data:

SNK- RBT 10 mg/24H (open) MLD

SKN-RBT 500 mg/24H MLD

EYE-RBT 100 mg

EYE-RBT 500 mg/24H MLD

Toxicity Data:

ORI-RAT LD₅₀: 14,500 mg/kg

SKN-RAT LD₅₀: 40 mg/kg

IPR-RAT LD₅₀: 8200 mg/kg

SCU-RAT LD₅₀: 12 mg/kg

| | | |
|---------|--------------------|------------|
| IVN-RAT | LD ₅₀ : | 560 mg/kg |
| UNR-RAT | LD ₅₀ : | 1300 mg/kg |
| IPR-MUS | LD ₅₀ : | 50 mg/kg |
| SCU-MUS | LD ₅₀ : | 14 mg/kg |
| IVN-MUS | LD ₅₀ : | 3100 mg/kg |

SECTION 12 - ECOLOGICAL INFORMATION

General notes

Water hazard class 1 (Self-assessment): Slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13 - DISPOSAL CONSIDERATIONS

1. Contact a licensed professional waste disposal service to dispose of this material.
2. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION 14 - TRANSPORT INFORMATION

Declaration for shipment:

Not classified as IATA Dangerous Goods Regulations.

SECTION 15 - REGULATORY INFORMATION

SARA

Section 355 (extremely hazardous substances):

None of the ingredient is listed.

Section 313 (Specific toxic chemical listings):

None of the ingredient is listed.

TSCA (Toxic Substances Control listings):

Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

Carcinogenicity categories

EPA (Environmental Protection Agency):

None of the ingredients is listed.

IARC (International Agency for Research on Cancer):

None of the ingredients is listed.

NTP (National Toxicology Program):

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH):

None of the ingredients is listed.

MAK (German Maximum Workplace Concentration):

None of the ingredients is listed.

NIOSH-Ca (National Institute for Occupational Safety and Health):

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

Product related hazard informations:

Observe the general safety regulations when handling chemicals. The product is not subject to identification regulations according to directives on hazardous materials.

Water hazard class:

Water hazard class 1 (Self-assessment), slightly hazardous for water.

SECTION 15 - OTHER INFORMATION

The above information is believed to be correct but does not purpose to be all inclusive and shall be used only as a guide.

Yeastern shall not be held liable for any damage resulting from handling or from contact with the above product.