

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: FastGene® 2x Optima HotStart ReadyMix with dye
PRODUCT CODES: LS29, LS31

MANUFACTURER: Nippon Genetics Europe GmbH
ADDRESS: Binsfelder Straße 77, 52351 Düren, Germany

PHONE: +49 (0) 2421 – 55 496 0
FAX PHONE: +49 (0) 2421 – 55 496 11

PRODUCT USE: Laboratory chemicals

SECTION 1 NOTES: None

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS**Chemical characterization**

CAS:56-81-5 EINECS:200-289-5	Glycerol	1~50%
---------------------------------	----------	-------

Other components:

- Components not listed here are not dangerous or their concentrations do not exceed the limits specified in the EU directive 1999/45/EC.

Additional information:

- For the wording of the listed risk phrases refer to section "OTHER INFORMATION".

SECTION 2 NOTES: None

SECTION 3: HAZARDS IDENTIFICATION**Hazard description:**

- Irritant to eyes, respiratory system and skin.
- Harmful in contact with skin.
- Toxic if swallowed.

Information concerning particular hazards for humans and environment:

- The product does not have to be labeled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

- The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

OSHA hazards ratings:

1. Health: 1
2. Fire: 1
3. Reactivity 0

SECTION 3 NOTES: None

SECTION 4: FIRST AID MEASURES

General information:

- Avoid skin contact, wearing of gloves is recommended. Do not swallow.

After inhalation:

- Supply fresh air. Give artificial respiration if not breathing. Consult a physician in case of complaints. Provide oxygen when breathing is difficult.

After skin contact:

- Flush skin with plenty of water. Remove contaminated clothing. Consult a physician in case of complaints.

After eye contact:

- Rinse opened eye for several minutes under running water. Consult a physician if necessary.

After ingestion:

- Rinse mouth with water if person is conscious. Do not induce vomiting unless directed to do so by medical personnel. If symptoms persist consult doctor.

Note to physicians:

- Take protective action according to the material
- Do not inject adrenalin

SECTION 5: FIRE-FIGHTING MEASURES

Suitable extinguishing agents:

- CO₂, powder or water spray. Fight larger fires with water spray or appropriate foam.

Special risks:

- Can be ignited by heat, spark, flame
- Container may explode on heating
- Some can ride, but not easily ignite
- May cause irritation and poisonous gas in case of fire
- Inhalation of the substance may be harmful
- Some fluids may cause dizziness, suffocation-inducing vapors

Protective equipment for fire-fighters:

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

SECTION 5 NOTES: None

SECTION 6: ACCIDENTAL RELEASE MEASURES

Person-related safety precautions:

- Wear respirator, chemical safety goggles, rubber boots and gloves.
- Micor particle can ignite fire or explosion, therefore remove all the sources of fire.
- Do not enter the space without proper respirator until proper air (oxygen concentration 18 ~ 23.5%) is available.

Measures for environmental protection:

- Dilute with plenty of water. Do not allow undiluted or large quantities of product to enter sewers/surface or ground water.
- Put spills into a clean, dry container with clean shovel, loosely closed, then transfer container from leak area.

Measures for cleaning/collecting:

- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Additional information: None.

SECTION 6 NOTES: none

SECTION 7: HANDLING AND STORAGE

Information for safe handling:

- Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.
- Keep the temperature below 20°C because this material evaporates slowly and reaches hazardous concentrations.

Information for safe storage:

- No special requirements to be met by storerooms and receptacles.
- No special requirements to be met for storage in one common storage facility.
- No further information about storage conditions provided.
- Keep it tightly closed
- Store in a cool, dry place

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information:

- The lists valid during the making of this MSDS were used as basis.

Ingredients with limit values that require monitoring at the workplace:

- Glycerol: PEL () 10 mg/m³ total dust, 5 mg/m³ respirable fraction
TLV () 10 ppm

General protective and hygienic measures:

- The usual precautionary measures are to be adhered to when handling chemicals.

Respiratory protection:

- Not required for the levels present in this product.

Protection of hands:

- The glove material has to be impermeable and resistant to the product/the substance/the preparation. Due to missing tests no recommendation for the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and physical degradation should be made.

Material of gloves:

- The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:

- The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

- Chemical safety goggles recommended.
- Install eyewash and emergency shower near work area.

Body protection:

- Wear suitable chemical resistant clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Solution with dark to yellow color
ODOR:	Some components have an ammonia-like odor, dull
PHYSICAL STATE:	Liquid
pH AS SUPPLIED:	neutral
BOILING POINT:	171 °C
MELTING POINT:	20 °C
FREEZING POINT:	160 °C (c.c.)
EVAPORATION RATE:	no information available
SOLUBILITY:	water solubility: 1000 g/L at 25°C; solvent solubility: alcohol, ethyl acetate, ether insolubility, benzene, chloroform, carbon tetrachloride, carbon disulfide, oil ether, oil
STEAM PRESSURE:	0.0025 mmHG (at 50°C)
VAPOR DENSITY:	3.1 (air =1)
SPECIFIC GRAVITY:	1.2613 (water =1)
DANGER OF EXPLOSION:	No explosion hazard
n-octanol/ distribution coefficient:	No information available
SELF-IGNITING:	370°C
DISASSEMBLE TEMPERATURE:	290°C
VISCOSITY:	954 cP (at 25°C)

SECTION 9 NOTES: None

SECTION 10: STABILITY AND REACTIVITY

Thermal decomposition / conditions to be avoided:

- No decomposition if used according to specifications. Avoid strong heating.

Dangerous reactions:

- Avoid reactions with bases and oxidizing agents.

Dangerous decomposition products:

- Carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride gas, sulphur oxides

SECTION 10 NOTES: None

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity:

Can be absorbed by the body, through skin, digestive system or inhalation of aerosol or steam

- LD50 oral, mouse (Glycerin) – 27200 mg/kg;
LD50 oral, rat (Glycerin) – 12600 mg/kg;
- Ingestion (Glycerin) LD50 > 10000 mg/kg Rat

Special target poison (long exposure)

- LD50 inhalation, rat, 4 h – 1-4 mg/l epiglottis epithelium.
- Germ cell mutagenicity (Glycerin) – many color mammal red blood cell/ negative
- Drowsiness or spasms may occur after swallowing.

Irritation data:

No data available

Primary irritant effect:

No data available

Sensitization:

- No sensitizing effects known.

Additional toxicological information:

- The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version. When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

SECTION 11 NOTES: None

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

Fish

Glycerin LC50 5000 mg/l 24 hr *Carassius auratus*

Crustacean

Glycerin EC50 > 10000 mg/l 24 hr *Daphnia magna* (*Daphnia magna* EC50 (24 hr) 10000 mg/l (US EPA ECOTOX); *Daphnia magna* EC50 (24 hr) > 10000 mg/L (EU IUCLID))

Algae

Glycerin LC50 (96 hr) 77712.039 mg/l

Residual fungicide and resolvability

Residual fungicide

Glycerin No information available

Resolvability

Glycerin No information available

Life enrichment

Enrichment

Glycerin No expected life enrichment

Biodegradability

Glycerin 63% 14 day Fast biodegradability (OECD SIDS)
93% biodegradability in 30 days (OECD TG 301D) (IUCLID)

Soil

Glycerin No information available

Other harmful influences

Glycerin Environmental: No information on toxicity on aquatic organisms

SECTION 13: DISPOSAL CONSIDERATIONS

Product:

- **Recommendation:** Disposal must be made according to official regulations.

Uncleaned packaging:

- **Recommendation:** Disposal must be made according to official regulations.

Recommended cleansing agents:

- Water, if necessary together with cleansing agents. Combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

SECTION 13 NOTES: None

SECTION 14: TRANSPORT INFORMATION

- This product is Not Hazardous as defined by 49 CFR 172 by the US Department of Transportation.
- This product is not classified as hazardous goods, per the regulations of Transport Canada.

PAGE 6 OF 7

- This product is not classified as dangerous goods, per the rules of the International Air Transport Association (IATA).
- This product is not classified as dangerous goods, per the rules of the International Maritime Organization (IMO).
- This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods (ADR).

SECTION 14 NOTES: None

SECTION 15: REGULATORY INFORMATION

Labeling according to EU guidelines:

• Observe the general safety regulations when handling chemicals. The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

Special labeling of certain preparations:

• Safety data sheet available for professional user on request.

SECTION 15 NOTES: None

SECTION 16: OTHER INFORMATION

This information is based on our present knowledge and shall be used only as a guide. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. NIPPON Genetics EUROPE GmbH is not held liable for any damage resulting from handling or from contact with the above mentioned products. MSDS has been prepared in accordance with EU directives 67/548/EEC, 91/155/EEC and other EU Community legislation in force.

End of Safety Data Sheet