MATERIAL SAFETY DATA SHEET According to EC Directive 91/155 EC Date: 01/08/10

1. Identification of the substance/preparation and of the company/undertaking

1.1 Product Details:

Trade Names: PCRBIO HiFi Polymerase

Catalogue Numbers: PB10.41-02
PB10.41-10

Kit Components: PCRBIO HiFi Polymerase (2u/ul)
5x HiFi buffer

1.2 Company Details

Manufacturer/Supplier:

PCR Biosystems Ltd.
1st Floor
Aztec House
397-405 Archway Road
London, N6 4ER
United Kingdom

Telephone: +44 (0) 203 930 8101
Email: info@pcrbio.com

Further information obtainable from:

Technical Services
Details as above

1.3 Emergency Details

24-hour contact in case of emergency:
2. Hazards identification

- Trade name: PCRBIO HiFi Polymerase
- Classification of the substance or mixture: The product is not classified according to the CLP regulation.
- Classification according to Regulation (EC) No 1272/2008: Void
- Information concerning particular hazards for human and environment: The product does not have to be labelled due to the calculation procedure of the “General Classification guideline for preparations of the EU” in the latest valid version.
- Classification system: The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
- Label elements
- Labelling according to EU guidelines: Observe the general safety regulations when handling chemicals.
- Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

3. Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.
- Dangerous components:
  - Glycerol
    - CAS: 56-81-5
    - EINECS: 200-289-5
- Additional information: For the wording of the listed risk phrases refer to section 16.

4. First aid measures

- Description of first aid measures
- General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
· After eye contact Rinse opened eye for several minutes under running water.
· After swallowing Induce vomiting and call for medical help.
· Information for doctor
· Most important symptoms and effects, both acute and delayed No further relevant information available.
· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5. Firefighting measures

· Extinguishing media
· Suitable extinguishing agents
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· Special hazards arising from the substance or mixture No further relevant information available.
· Advice for firefighters
· Protective equipment: No special measures required.

6. Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.
· Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
· Reference to other sections
No dangerous substances are released.
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7. Handling and storage

· Handling
· Precautions for safe handling No special measures required.
· Information about protection against explosions and fires: No special measures required.
· Conditions for safe storage, including any incompatibilities
· Storage
· Requirements to be met by storerooms and receptacles: According to product specification
· Information about storage in one common storage facility: Not required.
· Further information about storage conditions: None.
· Specific end use(s) No further relevant information available.

8. Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.
· Control parameters
· Components with limit values that require monitoring at the workplace:
56-81-5 glycerol
WEL () Long-term value: 10 mg/m³
· Additional information: The lists that were valid during the creation were used as basis.
· Exposure controls
· Personal protective equipment
· General protective and hygienic measures
The usual precautionary measures should be adhered to when handling chemicals.
· Breathing equipment: Not required.
· Protection of hands: Protective gloves.
· Material of gloves: Synthetic gloves
· Penetration time of glove material
The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· Eye protection: Safety glasses

9. Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:
  Form: Fluid
  Colour: Colourless
· Odour: Odourless
· Odour threshold: Not determined.
· pH-value: Not determined.
· Change in condition
  Melting point/Melting range: undetermined
  Boiling point/Boiling range: 100°C
· Flash point: > 55°C
· Flammability (solid, gaseous): Not applicable.
· Ignition temperature: 270°C
· Decomposition temperature: Not determined.
· Self igniting: Product is not selfigniting.
· Danger of explosion: Product does not present an explosion hazard.
· Explosion limits:
  Lower: 1.8 Vol %
  Upper: 63.0 Vol %
· Vapour pressure at 20°C: 23 hPa
· Density: Not determined
· Relative density: Not determined.
· Vapour density: Not determined.
· Evaporation rate: Not determined.
· Solubility in / Miscibility with
  Water: Fullymiscible
· Segregation coefficient (n-octanol/water): Not determined.
· Viscosity:
  dynamic: Not determined.
  kinematic: Not determined.
· Solvent content:
  Organic solvents: 12.0 %
  Water: 71.3 %
· Solids content: 16.7 %
· Other information: No further relevant information available.
10. Stability and reactivity

- Reactivity
- Chemical stability
  - Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
  - Possibility of hazardous reactions: No dangerous reactions known
  - Conditions to avoid: No further relevant information available.
  - Incompatible materials: No further relevant information available.
  - Hazardous decomposition products: No dangerous decomposition products known

11. Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification: 56-81,5 glycerol
      Oral LD50 1200 mg/kg (rat)
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: No irritating effect.
  - 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 according to our experience and the information provided to us.

12. Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behaviour in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Additional ecological information:
  - General notes:
    Water hazard class 1 (German Regulation) (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.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.

13. Disposal considerations

- Waste treatment methods
- Recommendation
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
14. Transport information

- Maritime transport IMDG:
- Marine pollutant: No
- Special precautions for user: Not applicable.
- Transport/Additional information: Not dangerous according to the above specifications.
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

15. Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- National regulations
- Technical instructions (air):
  Class Share in %
  NK 10-20
- Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
MATERIAL SAFETY DATA SHEET According to EC Directive 91/155 EC Date: 01/08/10

1. Identification of the substance/preparation and of the company/undertaking

1.1 Product Details:

Trade Names: PCRBIO HiFi Polymerase
Catalogue Numbers: PB10.41-02
                    PB10.41-10

Kit Components: PCRBIO Ultra Polymerase (5u/ul)
                  5x HiFi buffer

1.2 Company Details

Manufacturer/Supplier:

PCR Biosystems Ltd.
1st Floor
Aztec House
397-405 Archway Road
London, N6 4ER
United Kingdom

Telephone: +44 (0) 203 930 8101
Email: info@pcrbio.com

Further information obtainable from:

Technical Services
Details as above

1.3 Emergency Details

24-hour contact in case of emergency:
2. Hazards identification

· Trade name 5x HiFi Buffer
· Classification of the substance or mixture
· Classification according to Regulation (EC) No 1272/2008 The product is not classified according to the CLP regulation.
· Classification according to Directive 67/548/EEC or Directive 1999/45/EC Void
· Information concerning particular hazards for human and environment: The product does not have to be labelled due to the calculation procedure of the “General Classification guideline for preparations of the EU” in the latest valid version.
· Classification system: The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
· Label elements
· Labelling 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 (GefStoffV).
· Safety phrases: 35 This material and its container must be disposed of in a safe way.
· Other hazards
· Results of PBT and vPvB assessment
· PBT: Not applicable.
· vPvB: Not applicable.

3. Composition/information on ingredients

· Chemical characterization: Mixtures
· Description: Mixture of the substances listed below with nonhazardous additions.
· Dangerous components: None
· Additional information For the wording of the listed risk phrases refer to section 16.

4. First aid measures

· Description of first aid measures
· General information No special measures required.
· After inhalation Supply fresh air; consult doctor in case of complaints.
· After skin contact Generally the product does not irritate the skin.
· After eye contact Rinse opened eye for several minutes under running water.
· After swallowing Induce vomiting and call for medical help.
· Information for doctor
  · Most important symptoms and effects, both acute and delayed No further relevant information available.
  · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5. Firefighting measures

· Extinguishing media
  · Suitable extinguishing agents
    CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· Special hazards arising from the substance or mixture No further relevant information available.
· Advice for firefighters
  · Protective equipment: No special measures required.

6. Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.
· Environmental precautions:
  Dilute with plenty of water.
  Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to item 13.
· Reference to other sections
  No dangerous substances are released.
  See Section 7 for information on safe handling
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7. Handling and storage

· Handling
  · Precautions for safe handling No special measures required.
  · Information about protection against explosions and fires: No special measures required.
  · Conditions for safe storage, including any incompatibilities
  · Storage
    · Requirements to be met by storerooms and receptacles: According to product specification
    · Information about storage in one common storage facility: Not required.
    · Further information about storage conditions: None.
  · Specific end use(s) No further relevant information available.

8. Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.
· Control parameters
· Components with limit values that require monitoring at the workplace:
  None
· Additional information: The lists that were valid during the creation were used as basis.
· Exposure controls
· Personal protective equipment
- General protective and hygienic measures
  The usual precautionary measures should be adhered to when handling chemicals.
  - Breathing equipment: Not required.
  - Protection of hands: Protective gloves.
  - Material of gloves: Synthetic gloves.
  - Penetration time of glove material
    The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - Eye protection: Safety glasses

9. Physical and chemical properties

- Information on basic physical and chemical properties
- General Information
- Appearance:
  - Form: Fluid
  - Colour: Colourless
  - Odour: Odourless
  - Odour threshold: Not determined.
  - pH-value: Not determined.
- Change in condition
  - Melting point/Melting range: Undetermined
  - Boiling point/Boiling range: 100°C
  - Flash point: > 55°C
  - Flammability (solid, gaseous) Not applicable.
  - Ignition temperature: 270°C
  - Decomposition temperature: Not determined.
  - Self igniting: Product is not selfigniting.
  - Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: 1.8 Vol %
  - Upper: 63.0 Vol %
- Vapour pressure at 20°C: 23 hPa
- Density: Not determined
- Relative density: Not determined.
- Vapour density: Not determined.
- Evaporation rate: Not determined.
- Solubility in / Miscibility with
  - Water: Fully miscible
  - Segregation coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Solvent content:
  - Organic solvents: 12.0 %
  - Water: 71.3 %
- Solids content: 16.7 %
- Other information: No further relevant information available.
10. Stability and reactivity

· Reactivity
· Chemical stability
· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
· Possibility of hazardous reactions: No dangerous reactions known
· Conditions to avoid: No further relevant information available.
· Incompatible materials: No further relevant information available.
· Hazardous decomposition products: No dangerous decomposition products known

11. Toxicological information

· Information on toxicological effects
· Acute toxicity:
· LD/LC50 values that are relevant for classification:
· Primary irritant effect:
· on the skin: No irritant effect.
· on the eye: No irritating effect.
· 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 according to our experience and the information provided to us.

12. Ecological information

· Toxicity
· Aquatic toxicity: No further relevant information available.
· Persistence and degradability: No further relevant information available.
· Behaviour in environmental systems:
· Bioaccumulative potential: No further relevant information available.
· Mobility in soil: No further relevant information available.
· Additional ecological information:
· General notes:
   Water hazard class 1 (German Regulation) (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.
· Results of PBT and vPvB assessment
   · PBT: Not applicable.
   · vPvB: Not applicable.
· Other adverse effects: No further relevant information available.

13. Disposal considerations

· Waste treatment methods
· Recommendation
   Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
· Uncleaned packagings:
14. Transport information

- Maritime transport IMDG:
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