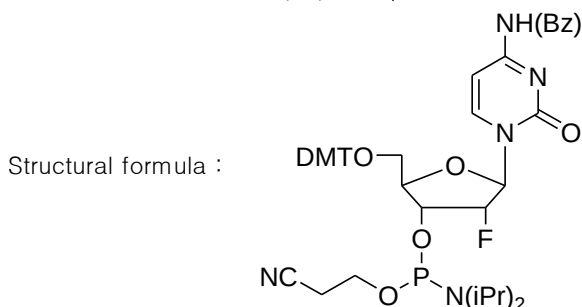


Material Safety Data Sheet

Version No.: 1.0(Revision 2012-11-30)

2'-F-rC(Bz) Phosphoramidite**1. Chemical Products & Company Identification**

Product name : 2'-F-rC(Bz) Phosphoramidite



Company : Bioneer Corporation

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Telephone : +82-42-930-8594

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Not a dangerous substance or mixture according to Regulation (EC) No. 1272/2008

This substance is not classified as dangerous according to Directive 67/548/EEC.

Pictogram : N/A

Label elements

This product does not need to be labelled in accordance with EC directives or respective national laws.

Caution : Substance not yet tested completely

Other hazards : none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 5'-Dimethoxytrityl-N-benzoyl-2'-Fluoro-2'-deoxy cytidine-3'- [(2-cyanoethyl)- (N,N-diisopropyl)]-phosphoramidite

Chemical Family : Protected Nucleoside

Molecular weight : 851.90 g/mol

Formula : C₄₆H₅₁FN₅O₈P**4. First-aid measures**

Description of first aid measures

General advice : Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled : If breathed in, move person into fresh air. If not breathing, give artificial respiration.

Consult a physician.

In case of skin contact : Wash off with soap and plenty of water. Consult a physician.

In case of eye contact : Flush eyes with water as a precaution. Consult a physician.

If swallowed : Never give anything by mouth to an unconscious person. Rinse mouth with water.

Consult a physician.

Most important symptoms and effects, both acute and delayed.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Indication of any immediate medical attention and special treatment needed : N/A

5. Fire fighting measures

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture : N/A

Advice for fire fighters : Wear self contained breathing apparatus for firefighting if necessary.

Further information : N/A

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal

7. Handling and storage

Precautions for safe handling

Avoid all direct contact and wear protective clothing, respirator, goggles, gloves.

Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature : below -20 °C

8. Exposure controls/personal protection

Control parameters : Components with workplace control parameters

Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/Face protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH(US) or EN 166(EU)

Skin protection : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific work-place.

Respiratory protection : Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH(US) or CEN (EU).

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance : Solid

Color : White

Odor : N/A

pH : N/A

Melting point/Freezing point : N/A

Boiling point : N/A

Flash point : N/A

Evaporation rate : N/A

Flammability(solid, gas) : N/A

Upper/Lower flammability or explosive limits : N/A

Vapor pressure/density : N/A

Relative density : N/A

Water solubility : non-soluble

Partition coefficient(n-octanol/water) : N/A

Autoignition temperature : N/A

Decomposition temperature : N/A

Viscosity : N/A

Explosive properties : N/A

Oxidizing properties : N/A

10. Stability and reactivity

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Strong oxidizing agents, strong reducing agents, strong bases, strong acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. – Carbon oxides(COx), nitrogen oxides (NOx),

Oxides of phosphorus(PxOy)

11. Toxicological information

Acute toxicity : N/A

Skin corrosion/irritation : N/A

Serious eye damage/eye irritation : N/A

Respiratory or skin sensitization : N/A

Germ cell mutagenicity : N/A

Carcinogenicity

IARC : No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity : N/A

Specific target organ toxicity – single exposure : N/A

Specific target organ toxicity – repeated exposure : N/A

Aspiration hazard : N/A

Potential health effects

Inhalation : May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion : May be harmful if swallowed.

Skin : May be harmful if absorbed through skin. May cause skin irritation.

Eyes : May cause eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS : N/A

12. Ecological information

Toxicity : N/A

Persistence and degradability : N/A

Bioaccumulative potential : N/A

Mobility in soil : N/A

PBT and vPvB assessment : N/A

Other adverse effects : N/A

13. Disposal considerations

Waste treatment methods

Product : Offer surplus and non-recyclable solutions to a licensed disposal company.

Observe all federal, state, and local environmental regulations.

Contaminated packaging : Dispose of as unused product.

14. Transport information

ADR/RID : Not dangerous goods

IMDG : Not dangerous goods

IATA : Not dangerous goods

Special precautions for user : N/A

15. Regulation information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006

16. Other Information

Bioneer Corporation makes no warranty or representation to its completeness, accuracy, or currency. This material is intended for use by persons with pertinent technical skills and at their discretion and risk. It is the responsibility of the user to determine the product's suitability for its intended use, the product's safe use, and the product's proper disposal. Disposal of hazardous material may be subject to federal, state or local laws or regulations.