Material Safety Data Sheet
Version No.: 1.0(Revision 2012-11-30)
dG(Ib)-CE Phosphoramidite

1. Chemical Products & Company Identification
   Product name: dG(Ib)-CE Phosphoramidite
   Structural formula:
   ![Structural formula]
   Company: Bioneer Corporation
   8-11, Munpyeongseo-ro, Daedeok-Gu, Daejon 306-220, South Korea
   Telephone: +82-42-930-8594
   FAX: +82-42-930-8600

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’-O-(4,4’-dimethoxytrityl)-N^2-isobutyryl-2’-deoxyguanosine-3’-O-[O-(2-cyanoethyl)-(N,N’-disopropyl)]-phosphoramidite
   Chemical Family: Protected Nucleoside
   Molecular weight: 839.92 g/mol
   Formula: C_{44}H_{54}N_{7}O_{8}P

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 creation 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 4 °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: Flowing powder
Color: White to off-white free
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 (P$_x$O$_y$)

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.