MATERIAL SAFETY DATA SHEET

According to EC Directive 91/155 EC
Date: 01/05/10

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

1.1 Product Details:

Trade Name: 5-Bromo-4-chloro-3-indolyl-β-D-galactopyranoside. (X-GAL)

Chemical Formula: $C_{14}H_{15}BrCIN06$

Catalogue Number: BIO-37035

CAS Number : 7240-90-6

1.2 Company Details:

Manufacturer/ Supplier:
Bioline
16 The Edge Business Centre
Humber Road
London
NW2 6EW
Tel: +44 (0)20 8830 5300
Fax: +44 (0)20 8452 2822

Further Information Obtainable from:
Technical Services
Details as above

1.3 Emergency Details:

24-Hour Contact in case of emergency:
Vergiftungs-Informations-Zentrale
Mathilden Strasse 1
79106 Freiburg
GERMANY
Tel: +49 (0) 761 19240

2. Composition/ Information on Ingredients

2.1 Chemical Characterisation:

Description: Mixture of substances listed below with non-hazardous additions.

Dangerous Components: Substance not yet fully tested.

3. Hazards Identification

3.1 Precautionary Statements:

R 36/37/38: Irritating to eyes, respiratory system and skin.
S 22: Do not breathe dust
S 24/25: Avoid contact with skin and eyes

4. First Aid Measures

4.1 After Inhalation:
Remove to fresh air. If irritation persists consult a doctor immediately.

4.2 After Swallowing:
Wash mouth out with water provided the person is conscious. Consult a doctor immediately.

4.3 After Contact with Eyes:
Immediately flush eyes with copious amounts of water for several minutes. Consult a doctor immediately.

4.4 After Contact with Skin:
Immediately wash with soap and copious amounts of water.

5. Fire Fighting Measures

5.1 Suitable Extinguishing Media:
Water spray, CO_2, foam or dry chemical powder. Large fires should be confronted with water spray or alcohol resistant foam.

5.2 Unusual Fire Hazard:
No special fire hazard in normal use. Possible hazardous combustion/decomposition products may be formed under fire conditions. Nitrogen Dioxide, Phosphorous oxides, Carbon monoxide and Carbon dioxide may be formed at high temperatures. Hazardous polymerisation will not occur.

5.3 Fire Fighting Protective Measures:
Wear protective clothing to prevent contact with the skin and eyes.
Wear self-contained breathing equipment to prevent inhalation of explosive or combustion gasses.

6. Accidental Release Measures

6.1 Personal Precautions:
Ensure ventilation is adequate. Wear rubber gloves. Wear also suitable eye protection and a dust mask.

6.2 Environmental Precautions:
Do not allow to enter the surface or ground water. Do not allow to enter sewers.

6.3 Clean-up Measures:
Sweep up and keep in a closed container for disposal. Clean the affected area with hot water. Ventilate area well after clean-up procedures have taken place.

7. Handling and Storage

7.1 Handling:
Avoid contact with eyes and skin. Avoid inhalation of dust.

7.2 Storage:
To avoid deterioration, the product should be stored in tightly closed containers.
The product may deteriorate if exposed to light and/or humidity for prolonged periods.
Store at -20°C.

8. Exposure Controls/ Personal Protection

8.1 Engineering Measures:
Use in a fume cupboard or under Local Exhaust Ventilation.

8.2 Personal Protection:
Respiratory Protection: Wear a suitable dust-mask.
Hand Protection: Gloves should be worn, either rubber or chemical resistant.
Eye Protection: Wearing safety goggles is advised, as is the availability of eye-wash stations.
Skin Protection: Lab coats should be worn during handling. Safety deluge showers should be available.

Hygiene Practices: Avoid contact with skin or eyes. Do not place in mouth.
Do not eat, drink or smoke when handling this product. Upon completion of the use of this product, dispose of protective gloves safely and wash hands thoroughly with soap and water.

9. Physical and Chemical Properties

9.1 Physical Properties
Appearance: Off white powder.

9.1 Chemical Properties
Molecular Weight : 408.61

Melting point/Melting range: 229°C
Boiling point/Boiling range: N/A
Flash Point: Not Applicable
Autoflammability: Product is not self-igniting
Explosive Properties: None
Relative Density: Undetermined
Solubility in Water: Slightly Soluble
Stability: Stable

10. Stability and Reactivity

10.1 Stability
Product is stable under normal handling and storage conditions.
Avoid excess heat, flame and pressure.
Thermal decomposition: None if used under ordinary conditions.
Product nay deteriorate if in direct sunlight or humidity.

10.2 Reactivity
Dangerous Reactions: Avoid contact with strong oxidising agents, acids and alkali.
Hazardous Decomposition Products: None that are known.

11. Toxicological Information

11.1 Primary Irritant Effect:
R36/37/38: Irritating to eyes, respiratory system and skin.
Adverse health effects may occur from vapours in poorly ventilated areas, including irritation of the mucous membranes of the nose, throat, respiratory tract and symptoms of headache and vomiting.

11.2 Sensitisation Effects:
Via prolonged exposure, a sensitising effect through inhalation is possible.
Via prolonged exposure, a sensitising effect on the skin is possible.

11.3 Further Toxicological Information
It is not yet known whether this product has any carcinogenic properties.
Full toxicity data is not yet available, and all due care should be excersised.
This 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.

12. Ecological Information

12.1 Environmental Effects
Environmental Fate/Stability: Unknown
Effects on Plants or Animals: Unknown

12.2 Water Hazard
This product is slightly hazardous for water.
Do not allow product to come into contact with surface or ground water, and do not allow it to reach the sewage system.

13. Disposal Considerations

13.1 Product Disposal:
Dissolve according to local regulations or mix with a combustible solvent and burn in an approved chemical incinerator.

13.2 Packaging Disposal:
Unclean packaging should be disposed of according to official regulations.

14. Transport Information

14.1 Land Transport:
Product does not belong to a hazard class of any international agreements on the transport and packaging of dangerous goods.

14.2 Maritime Transport:
This product is not a marine pollutant.

14.3 Air Transport
Product does not belong to any hazard classification.

15. Regulatory Information

15.1 Labelling According to EU Guidelines
This product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials.
General safety regulations should always be observed when handling chemicals.

16. Other Information

The information provided in this Material Safety Data Sheet (MSDS) is accurate to the best of our present knowledge. However, this shall not constitute a guarantee for any specific product features. All substances and preparations may present unknown hazards and should be used with caution. Bioline shall not be held liable for any damage resulting from the handling of or from contact with the above product. The information supplied in this MSDS shall not establish a legally valid contractual relationship.