


NHS-activated Bestarose 4FF

Chemical Safety Data Sheet(MSDS)

1. Chemical Safety Data Sheet(MSDS)

Chemical name	CNBr-activated Bestarose 4B
Company	Bestchrom (Shanghai) Biosciences Ltd.
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Company	Bestchrom (Shanghai) Biosciences Ltd.

2. Hazards identification

Classification of dangerous goods	Highly flammable liquid and vapor
Pictogram	
Signal word	Warning
Hazard statement(s)	Exposure to high concentrations of vapor causes headache, lethargy, ataxia, and eye, nose, and throat irritation. Oral administration can cause nausea, vomiting, abdominal pain, diarrhea, lethargy, coma and even death. Long-term skin contact can cause dry and chapped skin.
Enter source	Inhale, eat, absorb by skin
Environmental hazards	Hazardous to environment
Explosive danger	Isopropanol in the resin is flammable and stimulating.

3. Composition/Information on Ingredients

Chemical composition	Percentage (%)	CAS No.	EC No.
Slurry NHS-activated Bestarose 4FF	80	9002-18-0	232-658-1
Liquid isopropanol	18-24	67-63-0	200-661-7

4. First-aid Measures

Skin contact	Immediately remove/take off all contaminated clothing. Wash skin/shower with plenty of soap and water. See a doctor if necessary.
Eye contact	If in contact with eye, immediately flush eyes with large amounts of water or saline for at least 15 minutes. Consult a doctor.
Inhaled	Move the person to a place with fresh air and keep patient breathing clear. If patient shows difficulty in breathing, give oxygen. If the patient ingests or inhales

	this substance, mouth-to-mouth rescue respiration should not be performed. If patient stops breathing, perform CPR immediately. Seek medical treatment.
Eat	Wash mouth with a lot of water, seek medical treatment.
Precaution	In case of any inappropriate application or individual risk, take immediate actions.

5. Fire Fight Measures

Dangerous characteristic	Isopropanol is inflammable. Its vapor and air can form an explosive mixture, which is easy to burn and explode in case of open flame and high heat. It can react strongly with oxidants. Its vapor is heavier than air, can spread to a considerable distance at a lower place, and will ignite and rekindle in case of fire source. In case of high heat, the pressure in the container increases, and there is a risk of cracking and explosion.
Combustion products	CO, CO ₂
Fire-fighting measures	Move the container from the fire to an open place. Keep sprinkling the fire site container with water to cool it until fire is put out. In case containers have changed color or generated sound from the safety pressure relief device, evacuated immediately
Suitable extinguishing media	Resistant to soluble foam, dry powder, carbon dioxide, sand.
Precautions for fire fighting	Firefighters should wear protective equipment and gas masks, extinguish the fire in the upwind direction, and spray water to keep the fire site container cool. Extinguish fires at a safe distance and with adequate protection. Prevent fire water from polluting surface and groundwater systems.

6. Accidental Release Measures

Emergency processing	Quickly evacuate personnel from the leakage contaminated area to a safe area, isolate them, and strictly restrict access. Cut off the source of fire. It is recommended that emergency personnel wear self-contained positive pressure breathing apparatus and anti-static work clothes. Cut off the source of the leak as much as possible. Prevent the flow into restricted spaces such as sewers and drainage ditches.
Minor leakage	Absorption with sand or other non-combustible materials. It can also be rinsed with plenty of water, diluted with washing water and put into the wastewater system.
Mass leakage	Build embankments or dig pits to contain them. Cover with foam to reduce vapor damage. It is transferred to a tank truck or special collector with an explosion-proof pump and recycled or transported to a waste treatment site for disposal.

7. Handling and Storage

Closed operation, full ventilation; Operators must be specially trained and strictly follow operating procedures. It is recommended that the operator wear a filtering gas mask (half mask), safety glasses, anti-static work clothes, and rubber oil-resistant gloves; Keep away from fire and heat sources, smoking is strictly prohibited in the workplace; Use explosion-proof ventilation systems and equipment; Prevent vapor leakage into the workplace air; Avoid contact with oxidants, reducing agents, alkalis;

The flow rate should be controlled during filling, and there should be a grounding device to prevent the accumulation of static electricity; When handling, it should be loaded and unloaded lightly to prevent damage to packaging and containers. Equipped with corresponding varieties and quantities of fire fighting equipment and leakage emergency treatment equipment. Empty containers may have harmful residues.

Storage Store in a cool, ventilated warehouse. Keep away from fire, heat sources. The warehouse temperature should not exceed 30 °C. Keep the container tightly sealed. It should be stored separately from oxidants, reducing agents and alkalis, and mixed storage should be avoided. Adopt explosion-proof lighting and ventilation facilities. It is forbidden to use mechanical equipment and tools that are prone to sparks. Storage areas should be equipped with emergency treatment equipment for leakage and suitable containers.

8. Exposure control and personal protective measures

Detection method	None
Engineering control	Production process is closed and adequately ventilated. Ensure eyewash and shower facilities are available.
Respiratory protection	Generally, no special protection is required, filtering mask can be worn when exposed to high concentrations
Eye protection	Generally, no special protection is required, safety protective glasses can be worn when exposed to high concentrations
Body protection	Wear antistatic overalls
Hand protection	Wear rubber protective gloves
Other protective	No smoking at workplace, keep personal hygiene.

9. Physical and Chemical Properties

Physical state	Slurry in the bottom and supernatant on top
Main ingredients	NHS-activated Bestarose 4FF is stored in 100%isopropanol
Flash point	12°C (isopropanol)
Melting point	-88.5°C (isopropanol)
Boiling point	80.3 °C(isopropanol)
Relative density	0.79 (isopropanol) (water=1)
Vapor density	2.07 (isopropanol) (air=1)
Saturated vapor pressure	4.40KPa (20°C) (isopropanol)
Burning heat	1984.7 (kJ/mol) (isopropanol)
Critical temperature	275.2°C (isopropanol)
Critical pressure	4.76MPa (isopropanol)
Logarithmic value of octanol/water partition	<0.28 (isopropanol)
Ignition temperature	399°C (isopropanol)
Ceiling explosive limit	12.7% (V/V) (isopropanol)
Lower explosive limit	2.0% (V/V) (isopropanol)
Solubility	Soluble in water, alcohol, ether, benzene, chloroform and most other

	organic solvents. (isopropanol)
Flash point	12°C (isopropanol)
Color	Solvent-Transparent; Slurry-white
Smell	Similar to mixture of ethanol and acetone

10. Stability and Reactivity

Stability	Stable
Prohibited content	Strong oxidizing agent, acids, anhydrides, halogens
Conditions to avoid	N/A
Polymerization hazard	nonpolymerization
Hazardous decomposition products	N/A

11. Toxicological Information

Toxicological data:

Product/component name	experiment	results	Delivery way	species
isopropanol	LD ₅₀	5045 mg/kg	oral	Big rat
	LD ₅₀	12800 mg/kg	injection	rabbit

Special toxicity:

carcinogenicity	No obvious effect
Mutagenic action	No obvious effect
teratogenicity	No obvious effect
sensitization:	
The suction intake	No obvious effect
Eye	There is some irritation to the respiratory system
Skin	Irritation to the eyes
	There is some irritation to the skin

Specific target organ lines Dangerous to exposure. May cause drowsiness or vertigo

12. Ecological Information

Ecological toxicity	None
Ecological degradation	None
Abiotic degradation	None
Bioenrichment and bioaccumulation	None

13. Disposal

Waste nature	Organic
Waste disposal approach	Reduce waste produced, avoid leakage, penetrate to soil and water source; Resin disposal should follow the environment and related regulation released by local government. Incineration can be applied.

Precaution Empty package and the product are both hazardous, which should be disposed in accordance with hazardous waste disposal guidance stipulated in local and national law.

14. Transport Information

CN(CN)	32064
UN No	1219
Name(UN)	Flammable liquid(Chromatography resin)
Packing category	II
Marine pollutant	None
Shipping details	Transport vehicles should be equipped with the appropriate fire extinguishing equipment and emergency treatment equipment for leakage.

15. Regulatory Information

Chemical safety law and rule in China:

Chromatography Media is uncatalogued: Inventory of existing chemical substances in China; List of hazardous chemical materials; Occupational exposure limits for hazardous agents in the workplace(Chemical hazardous agents);Frequently used by classification and marking of hazardous chemicals.

This SDS conforms to the following standards and regulations: GB/T 16483-2008,GB 13690-2009,GB 6944-2012,GB/T 15098-2008,GB18218-2018,GB 15258-2009,GB 190-2009,GB/T 191-2008,GB 12268-2012Rules of transportation of dangerous goods: China ministry of transportation; Regulations on the control over safety of dangerous chemicals(China)、 Recommendations on the transport of dangerous goods(UN RTDG).

16. Other Information

Compiling department: Bestchrom (Shanghai) Biosciences Ltd.----QA

Modification note: The second revision

Reference: UN TRANSPORT OF DANGEROUS GOODS Model Regulations

UN Globally Harmonized System of Classification and Labeling of Chemicals; (GHS) etc.

Declaration: This manual is prepared in accordance with the standard requirements of GB/T 16483-2008 "Regulations for preparation of safety technical instruction of chemical products" (equivalent to ISO 11014:2009) in our best knowledge. The data information in clauses 2~14 are the corresponding data of acetone, so it is only for reference. All materials have unknown hazards. The consignee of this product must formulate safe operation procedures according to the requirements of the MSDS and the actual situation of the site, while operating with caution. Bestchrom is not responsible for the damage caused by handling and expose to the above-mentioned products.