

Material Safety Data Sheet

Date of Issue: 26 Oct 2018

1. IDENTIFICATION OF THE SUBSTANCE

- . **Product Name:** Flamma[®] 648 NHS ester
- . **Product Code:** PWS1215

2. COMPANY INFORMATION

- BioActs, DK Tower 10th F, 595 beongil-9, Cheongneung-daero Namdong-gu, Incheon, Korea
- . Telephone: 82-32-818-9100
 - . Fax: 82-32-818-8206
 - . E-mail: technical@bioacts.com
 - . Emergency Contact: 82-32-818-9100

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

3. COMPOSITION / INFORMATION ON INGREDIENTS

- . Component: Flamma[®] 648 NHS ester mixture
- . Weight Percent: 80 – 100

**The product contains no substances that considered to be hazardous to health.
We recommend handling all chemicals with caution.**

4. HAZARDS IDENTIFICATION

Health hazards overview: We are not aware of any reported health hazards for this product, however we recommend treating all chemicals with caution.

Potential Health Effects Principle Routes of exposure

- Inhalation:** May be harmful by inhalation
- Skin:** May cause skin irritation in susceptible persons
- Eyes:** May cause eye irritation
- Ingestion:** May be harmful if swallowed

Specific Effects

- Carcinogenic effects:** No concerning information for making a satisfactory assessment
- Mutagenic effects:** No concerning information for making a satisfactory assessment
- Reproductive toxicity:** No concerning information for making a satisfactory assessment
- Sensitization:** No concerning information for making a satisfactory assessment

5. FIRST AID MEASURES

- Skin contact:** Rinse with plenty of water. If symptoms arise, call a physician.
Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If symptoms persist, call a physician.
Ingestion: Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Do not induce vomiting without medical advice.
Inhalation: Move to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration.

Notes to physician: Treat symptomatically.

6. FIRE-FIGHTING MEASURES

- Suitable extinguishing media:** Water spray, ABC powder or carbon dioxide foam
Special protective equipment for fire-fighters: Wear self-contained breathing apparatus and protective suit.

7. ACCIDENTAL RELEASE MEASURES

- Personal precautions:** Use personal protective equipment.
Methods for cleaning up: Take up mechanically and collect in suitable container for disposal.

8. HANDLING AND STORAGE

- Handling:** Always wear recommended protective equipment. No special handling advice required.
Storage: Store at -20 °C in a dark.

9. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering measures:** Ensure adequate ventilation, especially in confined areas.
Permissible exposure limit: Not available

Personal protective equipment

- Respiratory protection:** In case of insufficient ventilation, wear suitable respiratory equipment.
Hand protection: Impervious gloves
Eye protection: Safety glasses with side-shields
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

10. PHYSICAL AND CHEMICAL PROPERTIES

General Information

- Form:** Solid
Appearance: Blue
Odor: No information available
pH: No data available
Melting point: No data available
Boiling point: No data available
Flash point: No data available
Ignition temperature: No data available
Oxidizing properties: No information available
Water solubility: No data available

11. STABILITY AND REACTIVITY

- Stability:** Stable under normal conditions
Hazardous decomposition: No dangerous reaction under normal usage
Dangerous decomposition: None under normal use

12. TOXICOLOGICAL INFORMATION

Acute Toxicity

Chemical Name	LD ₅₀ oral (rat, mouse)	LD ₅₀ dermal (rat, rabbit)	LD ₅₀ inhalation (rat, mouse)
Flamma [®] 648 NHS ester	No data available	No data available	No data available

Potential Acute Health Effects of Principle Exposure Routes

- Inhalation:** May be harmful by inhalation
Ingestion: May be harmful if swallowed
Skin: May cause skin irritation in susceptible persons
Eye contact: May cause eye irritation with susceptible persons

Potential Chronic Health Effects

- Chronic effects:** No known significant effects or critical hazards
Carcinogenicity: No known significant effects or critical hazards
Mutagenicity: No concerning information for making a satisfactory assessment
Reproductive toxicity: No known significant effects or critical hazards
Fertility effects: No known significant effects or critical hazards

13. ECOLOGICAL INFORMATION

- Biodegradation:** Inherently biodegradable
Ecotoxicity effects: No information available
Mobility: No information available
Bioaccumulation: Does not bioaccumulate.

14. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulation

15. TRANSPORT INFORMATION

International Air Transport Association (IATA)

- Proper shipping name:** Not classified as dangerous in the meaning of transport regulations
Hazard class: None
Subsidiary Class: None
Packing group: None
UN-Number: None

16. REGULATORY INFORMATION

No specific data

17. OTHER INFORMATION

The above information was acquired by diligent search and/or investigation, and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, BioActs shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS MSDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

End of MSDS