

# MATERIAL SAFETY DATA SHEET

Apollo Separation Technologies Inc.  
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**Product Trade Name :** Apollo GreenZyme®

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**Substance Identification:** Biological Enzymes (GreenZyme® DNA proteins, CAS : N/A) : 8%;  
Sodium octadecanoate (CSA #822-16-2) : 1%;  
Magnesium Sulfate (CAS #7487-88-9) : 0.01%;  
Water: (CAS # 7732-18-5) : 90.99%

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**Physical Data :** Description: Semi-clear yellow with a slight fermentation odor.  
Evaporation rate: < 1 (butyl / acetate = 1)  
pH : 3.5 - 5 (in concentrated form); Injection at dilution form, pH : 6 to 7.  
Boiling point: 212<sup>0</sup>F. or 100<sup>0</sup>C. : Specific gravity : 1  
Solubility in water: Complete, 100% dispersible.  
Vapor pressure: 17.5 mmHg - 20<sup>0</sup>C.

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**Health Effects and First Aid :** Inhalation: Non-hazardous.  
Skin contact: Thoroughly rinse solution off the skin with soap and water.  
If an itching sensation or redness occurs, contact a physician.  
Eye contact: May cause minor irritation, flush eyes with water. If a burning or itching sensation develops, contact a physician.  
Ingestion: Relatively harmless. If swallowed, drink one or two glasses of water. If intestinal symptoms occur, contact a physician.

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**Reactivity Data :** Reactivity: Stable under normal conditions.  
Incompatibilities: Any materials that react violently with water.  
Hazardous polymerization: Will not occur.

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**Fire and Explosion Data :** Primarily water based solution, non-fire hazardous, non-explosive.

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**Safeguard Measures:** Ventilation: Provide adequate ventilation.  
Eye protection: Avoid contact with eyes. Contact lenses are not recommended.  
Protective clothing: Avoid skin contact with solution for long periods of time.  
Respiratory protection: Not applicable.

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**Spill of Leak Information :** Wash and flush down the area of the spill with liberal amount water.

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**Transportation Data:** DOT Proper shipping name: None. DOT Hazard class: N/A.  
DOT I.D. Number: N/A. DOT Label / Placard: None (0 /0 /0 /0)

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**General Use Area :** For Enhanced Oil Recovery (i.e. EOR) and environmental clean-up uses.

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**Storage and Disposal:** Enzyme solution may be stored in most any area, but should be kept away from direct heat or in an area where temperatures can reach over 160<sup>0</sup>F for prolong period of time. Shell life: over 3 years, use within 3 years.  
In process applications, GreenZyme® can be heated up to 100<sup>0</sup> C, higher if necessary under pressure, e.g. greater than 400<sup>0</sup> C in steam-huff-puff process.  
Disposal: If necessary, dispose of any unused dilute and/or concentrated solution in non-hazardous waste facility.

Harmony system code: 3507.90.0000;

China Import Code: 3507 9090;

Made in USA.

**GreenZyme® is a registered trademark of Apollo Separation Technologies Inc.**