SAFETY DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION

1.1 Product Name: 15-S-9

1.2 Catalog Number: APL-0103
Synonyms Name: C11-15 Pareth-9

1.3 CAS No.: 84133-50-6

1.4 Molecular Weight: 596

1.5 Chemical Formula: C12-14H_{25}-29O[CH_2CH_2O]xH

1.6 Recommended use of the chemical and restrictions on use

Identified uses: Multi-purpose surfactant. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

1.7 Details of the supplier of the safety data sheet

1.8 Company: APOLO Biochemical, Inc
575 ELMWOOD AVE.
MC56940A, ROCHESTER,
NY 14642, USA

1.9 Customer Information E-mail: info@apolobiochem.com / order@apolo.com.tw

SECTION 2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Skin irritation - Category 2

Serious eye damage - Category 1

Label elements

Hazard pictograms

Signal word: **DANGER!**

Hazards

Harmful if swallowed or if inhaled.

Causes skin irritation.

Causes serious eye damage.

Precautionary statements

Prevention

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/ eye protection/ face protection.

Response

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

If skin irritation occurs: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Slipping hazard.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Alcohols, C12-14-secondary, ethoxylated	84133-50-6	>= 97.0 %
Poly(ethylene oxide)	25322-68-3	<= 3.0 %

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

- **General advice:**

  First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

- **Inhalation:** Move person to fresh air; if effects occur, consult a physician.

- **Skin contact:** Wash off with plenty of water. Seek first aid or medical attention as needed. If molten material comes in contact with the skin, do not apply ice but cool under ice water or running stream of water. DO NOT attempt to remove the material from skin. Removal could result in severe tissue damage. Seek medical attention immediately. Suitable emergency safety shower facility should be immediately available.
- **Eye contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
- **Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. Seek medical attention immediately. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

- **Notes to physician:** Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

5.2 Unsuitable extinguishing media: No data available

5.3 Special hazards arising from the substance or mixture

- **Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. No hazardous combustion products are known
- **Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.4 Advice for firefighters

- **Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct waterstream. Use fine water spray or foam. Cool surroundings with water to localize fire zone.
- **Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area. Refer to section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Spilled material may cause a slipping hazard. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Sand. Dirt. Collect in suitable and properly labeled containers. Do not use water for cleanup.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Do not get in eyes. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Do not swallow. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage: No specific requirements. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. The shelf life given is for unopened containers stored under moderate temperature conditions.

7.3 Storage stability

Shelf life: Use within

24 Month

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Poly(ethylene oxide)	US WEEL	TWA aerosol	10 g/m3

8.2 Exposure controls

- **Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.
- **Individual protection measures**
  - **Eye/face protection:** Use chemical goggles.
  - **Skin protection**
    - **Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled,

physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

- **Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

- **Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

  The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Color	Yellow
Odor	Mild
Odor Threshold	No test data available
pH	7.1 Calculated. 1% aqueous solution.
Melting point/range	Not applicable to liquids
Freezing point	See Pour Point
Boiling point (760 mmHg)	> 250 °C (> 482 °F) at 760 mmHg Calculated. Decomposes before boiling
Flash point	**closed cup** 193 °C (379 °F) *ASTM D 93* **open cup** 243 °C (469 °F) *ASTM D92*
Evaporation Rate (Butyl Acetate = 1)	<0.01 *Calculated*
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	< 0.01 mmHg at 20 °C (68 °F) *Calculated.*
Relative Vapor Density (air = 1)	>1 *Calculated.*
Relative Density (water = 1)	1.006 at 60 °C (140 °F) / 20 °C Calculated.
Water solubility	*Visual* Completely soluble but some compositions may form gels
Partition coefficient: n-octanol/water	log Pow: 2.72 Estimated.
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	59.6 cSt *Calculated.*
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	596 g/mol Calculated.

Pour point 9 °C (48 °F) *Calculated.*

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: No data available

10.2 Chemical stability: Thermally stable at typical use temperatures.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Acute toxicity

- **Acute oral toxicity**

  Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death.

  LD50, Rat, > 412 mg/kg

- **Acute dermal toxicity**

  Prolonged skin contact is unlikely to result in absorption of harmful amounts.

  LD50, Rat, male and female, > 14,000 mg/kg

- **Acute inhalation toxicity**

  At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material may cause respiratory irritation and other effects. Excessive exposure may cause lung injury.

  LC50, Rat, male and female, 4 Hour, dust/mist, 1.06 mg/l

11.2 Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness.

May cause drying and flaking of the skin.

May cause itching.

11.3 Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

11.4 Sensitization

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

11.5 Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

11.6 Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

11.7 Carcinogenicity

No relevant data found.

11.8 Teratogenicity

No relevant data found.

11.9 Reproductive toxicity

For this family of materials: In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

11.10 Mutagenicity

No relevant data found.

11.11 Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity

- **Acute toxicity to fish**

  Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

  LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 3.2 - 3.6 mg/l

- **Acute toxicity to aquatic invertebrates**

  EC50, Daphnia magna (Water flea), static test, 48 Hour, 7.3 mg/l

- **Toxicity to bacteria**

  EC50, Bacteria, 16 Hour, > 1,000 mg/l

12.2 Persistence and degradability

- **Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

  10-day Window: Not applicable

- **Biodegradation:** > 60 %
- **Exposure time:** 28 d
- **Method:** OECD Test Guideline 301F or Equivalent
- **Theoretical Oxygen Demand:** 2.10 mg/mg

- **Chemical Oxygen Demand:** 2.07 mg/mg

12.3 Bioaccumulative potential

- **Partition coefficient: n-octanol/water(log Pow):** 2.72 Estimated.
- **Bioconcentration factor (BCF):** 29 Estimated.

12.4 Mobility in soil

No specific, relevant data available for assessment.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

SECTION 14. TRANSPORT INFORMATION

DOT

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Alcohol C6-C17 (Secondary) Poly (3-6) Ethoxylate)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Alcohol C6-C17 (Secondary) Poly (3-6) Ethoxylate

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15. REGULATORY INFORMATION

15.1 Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Acute toxicity (any route of exposure)

Skin corrosion or irritation

Serious eye damage or eye irritation

15.2 Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

15.3 Pennsylvania Worker and Community Right-To-Know Act:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

15.4 California Prop. 65

This product contains a chemical that is at or below California Propositions 65's "safe harbor level" as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the SDS or label.

15.5 United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

SECTION 16. OTHER INFORMATION

16.1 Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure. Additional information on this and other products may be obtained by visiting our web page.

16.2 Hazard Rating System

♦ **NFPA**

Health	Flammability	Instability
3	0	0

♦ **Legend**

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

16.3 Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and

Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Product has not been fully validated for medical applications. For research use only.

16.4 Prepared by: APOLO Biochemical, Inc.

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. APOLO shall not be held liable for any damage resulting from handling or contact with the above product.