Material Safety Data Sheet

Chemical name: **TinStar HM-411-1** Effective date: January 01, 2026

In view of the important information contained in this document, CoaTech expects you to read the entire chemical safety technical manual. Unless your use conditions require other appropriate methods or measures, please follow the preventive measures listed in this document.

1. Chemicals and Company Identification

1.1 Chemical Product Name: TinStar HM-411-1

1.2 Company Name: Haining CoaTech Metal Surface Technology Co., Ltd

1.3 Company Address: No. 67 Xianghong Road, Huangwan Town, Haining City, Jiaxing City, Zhejiang Province, 314400

1.4 Email: sales@cotech-china.com

1.5 Phone: 86-573-87260611

1.6 Emergency Contact Phone: 86-573-87260622

2. Chemical Composition Information

Component	CAS No.	Percentage
Nonylphenol Ethoxylate	14409-72-4	20%
Surfactant	-	18%
Deionized Water	7732-18-5	60%
Isopropanol	67-63-0	2%

3. Hazard Classification

3.1 Hazard Category: According to the provisions of the national standard GB 6944《Classification of Dangerous Goods and Identification Numbers for Their Names》, it is not classified as a dangerous good.

3.2 Routes of Exposure: Ingestion.

3.3 Health Hazards: May cause slight discomfort to the body when ingested.

3.4 Environmental Hazards: Oil product leakage contaminates the ground.

3.5 Fire and Explosion Hazard: According to the provisions of GB 6944 “Classification of Dangerous Goods and Item Numbering”, there is no fire or explosion hazard.

4. First Aid Measures

4.1 Skin Contact: Rinse with soap and water

4.2 Eye Contact: Rinse with water for more than 15 minutes, and seek medical treatment.

4.3 Inhalation: Move the person to fresh air. If symptoms appear, consult a doctor.

4.4 Ingestion: If the person is conscious, immediately rinse the mouth with water, and seek medical treatment.

5. Fire Protection Measures

5.1 Flammability Limits

5.2 Lower Limit: Not classified as a flammable hazardous substance; no relevant data available.

5.3 Upper Limit: Not classified as a flammable hazardous substance; no relevant data available.

5.4 Hazardous Combustion Products: Carbon monoxide (CO)

5.5 Extinguishing Media: Dry chemical / Carbon dioxide (CO_2) / Foam / Sand

5.6 Fire-Fighting Precautions and Measures: When fighting fires in enclosed spaces, wear a self-contained breathing apparatus (SCBA). Water spray is ineffective for extinguishing this fire.

6. Emergency Measures for Accidental Leaks

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental Precautions: Avoid release into the surrounding environment. If safety can be ensured, take measures to prevent further leakage or spillage. Retain and dispose of contaminated wash water. If large spills cannot be contained, inform local authorities.

6.3 Methods and Materials for Containment and Cleaning Up of Spills: Wipe up or scoop up and place into suitable containers for recovery or disposal. Local or national regulations may apply to the release and disposal of this material, as well as the materials and items used in the cleanup of emissions. You will need to determine the applicable regulations yourself. For large spills, implement containment or other appropriate bunding measures to prevent the material from spreading. If the contained material can be pumped, the recovered material should be stored in appropriate containers.

7. Handling and Storage

7.1 Handling

General Handling: Avoid contact with eyes. Do not swallow. Keep container tightly closed. Ensure adequate ventilation. Wash thoroughly after handling. For industrial use only.

Ventilation Facilities: Provide general or local exhaust ventilation facilities to maintain airborne concentrations below exposure guidelines.

Other Precautions: Foaming may occur during ecological wastewater treatment and other high-shear operations.

7.2 Storage

Follow good industrial hygiene and safety practices.

8. Personal Protection

8.1 Occupational Exposure Limits (OELs)

If exposure limits exist for this substance, they are listed below. If no exposure limits are listed, it indicates that no applicable reference values are available.

8.2 Respiratory Protection

Based on the physical properties of this substance, the product does not pose an inhalation hazard under normal conditions. Respiratory protective equipment must be worn when there is a possibility of exceeding exposure limits or regulatory values. If no applicable exposure limits or regulatory values exist, respiratory protection should still be worn if adverse reactions (such as respiratory irritation or discomfort) occur, or if a risk assessment demonstrates that a hazard is present. In most cases, respiratory protection is not required; however, if discomfort is experienced, an approved air-purifying respirator must be used.

8.3 Eye Protection

Use safety glasses (with side shields).

8.4 Hand Protection

Use chemical-resistant protective gloves suitable for this material, such as oil-resistant gloves.

8.5 Body Protection

Use chemical-resistant protective clothing suitable for this substance. Select specific gear based on the operational task, such as face shields, boots, aprons, or full-body suits.

8.6 Hygiene Measures

Maintain good personal hygiene. Do not eat or store food in the work area. Wash hands before smoking or eating. Ensure that eye wash stations and safety showers are located close to the workstation.

8.7 Engineering Controls

To minimize occupational health and safety risks at the source during the use of perfluoropolyether (PFPE) lubricating oils, and to eliminate hazards from oil volatilization, leakage, and contact, all operational scenarios must strictly implement the engineering control requirements specified in the product SDS. Inherently safer operations must be achieved through hardware facilities and work environment management, with specific control requirements as follows:

Ventilation and Air Exchange Controls: Open-air operations, such as oil filling, replacement, and

disassembly of lubricated components, must be conducted in areas with good mechanical or natural ventilation. When working in enclosed equipment, confined spaces, or sealed plant rooms, local exhaust and extraction facilities must be turned on to promptly expel trace volatile gases from the oil and prevent the accumulation of harmful gases. The air quality in the work area must comply with occupational health standards and strictly follow the ventilation control parameters required by the SDS.

Work Environment Isolation Controls: PFPE lubricating oil work areas shall implement zoned management. A safe isolation distance must be maintained from hot-work operations, high-temperature heat sources, and corrosive chemical storage areas. The site layout must strictly conform to the safe separation distances specified in the SDS. Exclusive operational signage and warning signs must be set up in the work area to demarcate the protective operational zone. Unauthorized personnel and equipment are prohibited from entering to avoid safety risks caused by cross-operations.

Equipment Enclosure and Spillage Controls: All equipment, pipelines, and containers used for storing, conveying, and filling PFPE lubricating oil must remain completely sealed. Inspect the condition of seals, joints, and valves regularly to eliminate leaks, drips, and spills. Dispensing equipment and oil storage units must be equipped with spill trays, impermeable liners, and matching waste liquid collection facilities so that trace leaks can be rapidly collected and treated, fully implementing the equipment engineering protection requirements of the SDS.

Temperature and Humidity Environmental Engineering Controls: Oil storage and operational areas must be equipped with temperature and humidity monitoring and regulation facilities. Ambient temperature and humidity must be strictly controlled within the ranges restricted by the SDS to prevent high temperatures from causing accelerated oil decomposition or volatilization, while also preventing damp environments from causing equipment corrosion or oil degradation, thereby ensuring stable and compliant operating environment conditions.

Grounding and Anti-Static Engineering Controls: For operational stages prone to static electricity generation—such as oil transfer, filling, and packaging—all oil storage equipment, metal containers, and transfer pipelines must be properly grounded and bonded. Anti-static engineering measures must be implemented to eliminate the risk of static accumulation, strictly executing the anti-static and anti-ignition engineering requirements of the SDS to eliminate static electricity safety hazards.

9. Physical and Chemical Properties

9.1 Appearance: Reddish-brown liquid

9.2 pH: 3.85

9.3 Odor: Slightly pungent odor

9.4 Flash Point: No data available

9.5 Flammability: Flammable liquid

9.6 Melting Point: No data available

9.7 Decompsition Temperature: No data available

9.8 Auto-ignition Temperature: Not self-igniting

10. Stability and Reactivity

10.1 Stability: Stable under normal conditions.

10.2 Incompatible Materials: The raw material components exhibit stable performance; no relevant incompatible materials.

10.3 Conditions to Avoid: Keep away from strong oxidizing agents, high temperatures, and open flames.

10.4 Hazardous Polymerization: The raw material components do not contain polymerizable active ingredients; no risk of hazardous polymerization.

10.5 Decomposition Products: Produces carbon monoxide (CO) and sulfur oxides (SO_x).

11. Toxicological Data

11.1 Acute Toxicity: Toxicological information, if available, will be listed in this section. Product test data is unavailable; refer to component data.

11.2 Subacute and Chronic Toxicity: May cause an allergic skin reaction. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

11.3 Irritation: Brief contact is essentially non-irritating to skin.

11.4 Sensitization: For similar substance(s): Did not demonstrate potential for contact sensitization in mice.

11.5 Mutagenicity: For similar substance(s): In vitro mutagenicity studies were negative.

11.6 Teratogenicity: No relevant data available.

11.7 Carcinogenicity: No relevant data available.

11.8 Other: Product test data is unavailable. Refer to component data.

12. Ecological data

12.1 Ecotoxicity: Based on data in similar substances, the substance has essentially no acute toxicity to aquatic organisms (the tested most sensitive species' LC50/EC50/EL50/LL50 > 100 mg/L).

12.2 Biodegradability: The substance is biodegradable and has passed the OECD test for rapid biodegradation. Based on data from similar substances, no relevant data are available.

12.3 Bioaccumulation: No data available

12.4 Other Harmful Effects: This substance is not listed on the Montreal Protocol lists and will not deplete the ozone layer.

13. Abandonment Notice

13.1 Waste Characterization: Industrial solid waste

13.2 Waste Disposal Methods: Do not pour into any sewers, on the ground, or into any body of water. All disposal operations must comply with all federal, state/provincial, and local laws and regulations. Regulations may vary by region; waste identification and compliance with relevant regulations are entirely the sole responsibility of the waste generator. Recommended disposal methods include sending the material to a licensed, qualified incinerator or other thermal destruction facility.

13.3 Disposal Precautions: Empty containers must be recycled or disposed of through a licensed waste treatment facility. Waste identification and compliance with relevant regulations are entirely the sole responsibility of the waste generator. Do not reuse empty containers for any other purpose.

14. Transportation Information

14.1 Dangerous Goods Number: According to the national standard GB 6944 Classification and Code of Dangerous Goods, this product is not classified as dangerous goods.

14.2 UN Number: Not classified as dangerous goods; no UN number assigned.

14.3 Packaging Labeling/Marking: Store in accordance with national regulatory requirements, and clearly label with information such as product name, date of manufacture, and manufacturer details.

14.4 Packing Group/Packaging Type: Iron cans, plastic pails, large iron drums.

14.5 Transport Precautions: General precautions apply. Ensure there is no damage or leakage in the containers prior to transport, and avoid keeping containers upside down (ensure "this side up").

15. Regulatory Information

This section provides select regulatory information regarding the components of this chemical product and does not include all applicable regulations. It is the user's responsibility to comply with all rules, regulations, and laws applicable to this chemical product.

（1）Measures for Environmental Management of New Chemical Substances

（2）Regulations on Safe Use of Chemicals in Workplaces

（3）Law of the People's Republic of China on the Prevention and Control of Pollution from Environmental Effects by Solid Waste

（4）Regulations on the Safety Administration of Hazardous Chemicals (State Council Order No. 591)

（5）Catalog of Hazardous Chemicals

（6）General Rules for Classification of Chemicals and Hazard Communication (GB 13690)

（7）Occupational Exposure Limits for Hazardous Factors in Workplaces—Chemical Hazardous Factors (GBZ 2.1).

（8）China List of Existing Chemical Substances (IECSC)

（9）Classification of Dangerous Goods and Item Numbering(GB 6944)

All specific constituents are included in the substance inventory, or are exempted, or are confirmed by the supplier.

16. Other Information

Suggested Use and Usage Restrictions: Industrial use only

Haining CoaTech Metal Surface Technologies Co., Ltd. urges every customer or recipient of this Safety Data Sheet (SDS) to study it carefully and consult appropriate experts to understand the significance of the data contained herein, and to become aware of the hazards associated with this product. The information provided above is given in good faith and is believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given.

Regulatory requirements vary across different jurisdictions; it is the buyer's/user's responsibility to ensure compliance with all national or local regulations. The information listed here applies only to the product as shipped. Since the conditions of use for the product are not under the control of the manufacturer, it is the user's obligation to determine the conditions necessary for the safe use of this product. Due to differing sources of information for Safety Data Sheets among different manufacturers, Haining CoaTech Metal Surface Technologies Co., Ltd. shall not be held responsible for Safety Data Sheets obtained from other sources.

For more information, please contact Haining Coatech Metal Surface Technologies Co., Ltd.

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