

SAFETY DATA SHEET

APR2511

FILE NO.: ARSDS-APR2511

ISSUE DATE: April 13, 2020

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1. PRODUCT IDENTIFIER

Product name: APR2511

1.2. RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USERecommended use: Polymer, Raw material
Restrictions on use: For manufacturing and research use only**1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET**Company: TWO H Chem Ltd.
Address: 234 Chungmin-Ro, Goesan-Eup, Goesan-Gun, Chungcheongbuk-Do, Korea
info@twohchem.com
Customer information number: 82-70-8255-7369**1.4. EMERGENCY TELEPHONE NUMBER**

Manufacturer: 82-43-832-6760

SECTION 2: HAZARDS IDENTIFICATION

2.1. PRODUCT HAZARD CATEGORY: Not applicable**2.2. LABEL ELEMENTS**Pictogram: Not applicable
Signal word: Not applicable
Hazardous warning: Not applicable
Hazardous prevention measures: Not applicable**2.3. OTHER HAZARDS**

If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in air. Processing temperatures that exceed those described in Section 10 (Conditions to avoid), may evolve fumes irritating the eyes, nose and throat. Exposure may result in reddening, tears and itching of the eyes and soreness in the nose and throat together with coughing.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

This product does not contain any components that require disclosure according OSHA Hazard Communication Standard 2012.

SECTION 4: FIRST AID MEASURES

4.1. GENERAL ADVICE: No hazards which require special first aid measures.
Skin contact: Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
Eye contact: Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
Inhalation: Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.
If symptoms persist, call a physician.
Ingestion: Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.

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4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYER:

None known.

4.3. PROTECTION OF FIRST-AIDERS:

Not available

SECTION 5: FIRE-FIGHTING MEASURES

5.1. SUITABLE AND UNSUITABLE EXTINGUISHING MEDIA

Suitable extinguishing media: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO₂.
Unsuitable extinguishing media: High pressure water streams.

5.2. SPECIFIC HAZARDS ARISING FROM THE CHEMICAL

May be ignited by heat, sparks of flames.
Containers may explode when heated.
Some of these materials may burn, but none ignite readily.
Fire will produce irritating and/or toxic gases.
If inhaled, may be harmful.

5.3. SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS

Dike fire-control water for later disposal; Do not scatter the material.
Move containers from fire area if you can do it without risk.
Fire involving tanks; Cool containers with flooding quantities of water until well after fire is out.
Fire involving tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Fire involving tanks; Always stay away from tanks engulfed in fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Eliminate all ignition sources.
Stop leak if you can do it without risk.
Please note that materials and conditions to avoid.
Ventilate the area.
Do not touch or walk through spilled material.
Prevent dust cloud.

6.2. ENVIRONMENTAL PRECAUTIONS AND PROTECTIVE PROCEDURES

Prevent entry into waterways, sewers, basements or confined areas.

6.3. THE METHODS OF PURIFICATION AND REMOVAL

Small spill: Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
Large spill: Dike far ahead of liquid spill for later disposal.
With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Be careful to dust generation or friction work.
Please note that materials and conditions to avoid.
Wash thoroughly after handling.
Please work with reference to engineering controls and personal protective equipment.
Be careful to high temperature.

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The handling of powder in both loading and unloading operations as well as fabrication may cause dust to be formed, and necessary precautions for personal protection (see Section 8) should be used. As with all finely divided materials, precautions should be taken to avoid inhalation and eye contact. Transfer from storage with a minimum of dusting. Polymer dust particles in the atmosphere are combustible and present a potential explosion hazard. Prevent dust accumulations and dust clouds. Dust layers can be ignited by spontaneous combustion or other ignition sources. Keep away from heat, sparks, flame and all other ignition sources.

Keep container closed. Clean up dust accumulations. For proper safety of personnel and property, the container should be emptied in compliance with NFPA 654, "Prevention of Fire and Dust Explosions in the Chemical, Dye, Pharmaceutical, and Plastics Industries." Exercise caution when dispensing the contents of this product's container in or around combustible environments (for example, where flammable solvents are being used).

In such cases, the possible occurrence of sparks could ignite vapors and cause a fire or explosion. Evaluate the need for grounding of equipment and container. Electrical equipment should be grounded and conform to applicable electrical code.

7.2. CONDITIONS FOR SAFE STORAGE

Store in a closed container.
Store in cool and dry place.
Store away from excessive heat and away from strong oxidizing agents.
Keep container closed to prevent contamination.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. OCCUPANTIONAL EXPOSURE LIMITS

KOREAN REGULATION:	Not available
US (NIOSH / OSHA / ACGIH):	
- NIOSH:	Not available
- OSHA:	Not available
- ACGIH:	Not available
EU REGULATION:	Not available
OTHERS:	Not available

8.2. APPROPRIATE ENGINEERING CONTROLS

Provide local exhaust ventilation or other engineering controls to keep concentration of airborne under threshold limit value.

8.3. PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection

- Respiratory: Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In the case exposure to particulate material, the respiratory protective equipment as follow are recommended. ; facepiece filtering respiratory or air purifying respiratory, high-efficiency particulate air (HEPA) filter media or respirator equipped with powered fan, filter media of use (dust, mist, fume).
- In lack of oxygen (< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus oxygen.

Eye protection

- Wear facepiece with goggles to protect.
- An eye wash unit and safety shower station should be available nearby work place.
- Wear breathable safety goggles to protect from particulate material causing eye irritation or other disorder.

Hand protection

- Wear chemical resistant gloves.
- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

Body protection

- Wear appropriate protective chemical resistant clothing.
- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Naturally white pellet
ODOR:	Not available
PHYSICAL STATE:	Solid (pellet)
pH:	Not applicable
BOILING POINT:	Not applicable
MELTING POINT:	120 - 135°C
VAPOR PRESSURE (mmHg):	Not available
VAPOR DENSITY (AIR = 1):	Not available
EVAPORATION RATE:	Not applicable
FLAMMABILITY (SOLID, GAS):	Not applicable
UPPER / LOWER EXPLOSIVE LIMITS:	Not applicable
SOLUBILITY IN WATER:	Insoluble
SPECIFIC GRAVITY (H ₂ O = 1):	0.928 – 0.935
AUTO IGNITION TEMPERATURE:	Not available
DEGRADATION TEMPERATURE:	> 330°C
VISCOSITY:	Not available
MOLECULAR WEIGHT:	Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY / CHEMICAL STABILITY / POSSIBILITY OF HAZARDOUS REACTIONS

Fire may produce irritating and / or toxic gases.
If inhaled, may be harmful.

10.2. CONDITIONS TO AVOID

Heat, sparks or flames.
Temperature > 330°C (> 626°F)
Degradation on heating.

At temperatures above the "conditions to avoid" temperature, thermal degradation of the resin accelerates. Degradation can occur below the recommended processing temperature limit. Degradation is a function of both processing temperature and time at the temperature.

10.3. INCOMPATIBLES MATERIAL

Combustibles.

10.4. HAZARDOUS DECOMPOSITION PRODUCT

Irritating and / or toxic gases.

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. DELAY BY SHORT TERM AND LONG TERM EXPOSURES, ACUTE AND CHRONIC EFFECT

Acute toxicity	
- Oral:	Not available
- Dermal:	Not available
- Inhalation:	Not available
Skin corrosion / Irritation:	Not available
Serious eye damage / Irritation:	Not available
Respiratory sensitizer:	Not available
Skin sensitization:	Not available
Carcinogenicity:	Not classified
Germ cell mutagenicity:	Not available
Reproductive toxicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ toxicity (repeat exposure):	Not available
Aspiration hazard:	Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1. ECOTOXICITY

Acute toxicity:	Not available
Chronic toxicity:	Not available
- Fish:	Not available
- Crustacea:	Not available
- Algae:	Not available

12.2. PERSISTENCE AND DEGRADABILITY

Persistence:	Not available
Degradability:	Not available

12.3. BIOACCUMULATIVE POTENTIAL

Bioaccumulation:	Not available
Biodegradation:	Not available

12.4. MOBILITY IN SOIL: Not available**12.5. OTHER HAZARDOUS EFFECT:** Not available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. DISPOSAL METHOD

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

13.2. DISPOSAL PRECAUTION

Consider the require attentions in accordance with waste treatment management regulation.

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SECTION 14: TRANSPORT INFORMATION

14.1. INTERNATIONAL REGULATION

US DOT:	Not regulated as a dangerous good
Canadian TDG:	Not regulated as a dangerous good
IATA:	Not regulated as a dangerous good
IMDG:	Not regulated as a dangerous good
- UN number:	Not applicable
- UN proper shipping name:	Not applicable
- Transport hazard class:	Not applicable
- Packing group:	Not applicable
- Marine pollutant:	Not applicable
- Special precautions	
In case of fire:	Not applicable
In case of leakage:	Not applicable

SECTION 15: REGULATORY INFORMATION

15.1. NATIONAL AND/OR INTERNATIONAL REGULATORY INFORMATION

POPs management law:	Not applicable
EU Classification	
Classification:	Not applicable
Risk phrases:	Not applicable
Safety phrases:	Not applicable
U.S.A. management information	
OSHA regulation (29CFR1910.119):	Not applicable
CERCLA 103 regulation (40CFR302.4):	Not applicable
EPCRA 302 regulation (40CFR355.30):	Not applicable
EPCRA 304 regulation (40CFR355.40):	Not applicable
EPCRA 313 regulation (40CFR372.65):	Not applicable
Rotterdam convention listed ingredients:	Not applicable
Stockholm convention listed ingredients:	Not applicable
Montreal convention listed ingredients:	Not applicable

SECTION 16: OTHER INFORMATION

The product mentioned in this safety data sheet are not intended to be used for medical, pharmaceutical or healthcare applications and we do not support their use for such applications. To the best of our knowledge, the information contained herein is accurate and reliable as of the data of publication; however we do not assume any liability whatsoever for the accuracy and completeness of such information. TWO H Chem makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability of fitness for a particular purpose. In the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

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DISCLAIMER OF RESPONSIBILITY:

TWO H Chem Ltd. does not recommend and will not knowingly provide any of its products, including samples, for use as: Components of, or packaging for, tobacco products; Components of products where the end product is intended for human or animal consumption; In any application that is intended for any internal contact with human body fluids or body tissues; As a critical component in any medical device that supports or sustains human life; In any product that is designed specifically for ingestion or internal use by pregnant women; and in any application designed specifically to promote or interfere with human reproduction.

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OTHER INFORMATION:

- Note 1
- Always ensure adequate ventilation of the workplace.
 - Local exhaust ventilation of process equipment may be needed.
 - Avoid breathing vapors or fumes.
- Note 2
- Incorrect operation of processing equipment can cause thermal degradation of the polymer and a potential danger through inclusion of bubbles of air or other gases in material subsequently subjected to high temperatures.
- Note 3
- Avoid sources of ignition such as heat or flames.

<Record management>

Revision	Revision categories	Revision content	Revision date
Legislate	Overall	Legislate	April 13, 2020