# SAFETY DATA SHEET

**according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

## SECTION 1. IDENTIFICATION

- **Product name:** Everflon™ PFA Fluoroplastic Resin C410
- **SDS Number:** 1535200-00045
- **Manufacturer or supplier's details:**
  - **Company name of supplier:** Wuhan Everflon Fluoropolymers Co.,Ltd.
  - **Address:** Wuhan, Hubei Province, P.R. China
  - **Telephone:** 0086-185-7168-9228
  - **Emergency telephone:** 0086-185-7168-9228 (24 hours)
- **Recommended use of the chemical and restrictions on use:**
  - **Recommended use:** Resin for moulding and/or extrusion
  - **Restrictions on use:** For industrial use only. Do not use or resell Everflon™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use.

## SECTION 2. HAZARDS IDENTIFICATION

- **GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200):**
  - Not a hazardous substance or mixture.
- **GHS label elements:**
  - No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.
- **Other hazards:**
  - The thermal decomposition vapors of fluorinated plastics may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.
  - Dust or granules contact with eyes can lead to mechanical irritation.
  - Pellets spilled on the floor present a serious slipping hazard.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

- **Substance / Mixture:** Mixture
- **Components:**

| Chemical name | CAS-No. | Concentration (% w/w) | Trade secret |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Poly(pentafluoroethyl trifluorovinyl ether/tetrafluoroethylene) | 31784-04-0 | >= 95 - <= 99 | - |
| Carbon black | 1333-86-4 | >= 1 - <= 5 | TSC |

*(TSC: the actual concentration or concentration range is withheld as a trade secret)*

# SECTION 4. FIRST AID MEASURES

- **If inhaled:** If inhaled, remove to fresh air. Get medical attention if symptoms occur.
- **In case of skin contact:** Wash with water and soap as a precaution. Get medical attention if symptoms occur. (If molten material contacts skin, cool immediately with cold water; do not attempt to peel solidified resin from skin. Seek immediate medical attention).
- **In case of eye contact:** Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
- **If swallowed:** If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
- **Most important symptoms and effects, both acute and delayed:** Polymer fume fever.
- **Protection of first-aiders:** No special precautions are necessary for first aid responders.
- **Notes to physician:** Treat symptomatically and supportively.

# SECTION 5. FIRE-FIGHTING MEASURES

- **Suitable extinguishing media:** Water spray, Alcohol-resistant foam, Carbon dioxide ( $CO_2$ ), Dry chemical.
- **Unsuitable extinguishing media:** None known.
- **Specific hazards during fire fighting:** Exposure to combustion products may be a hazard to health.
- **Hazardous combustion products:** Hydrogen fluoride, carbonyl fluoride, potentially toxic fluorinated compounds, aerosolized particulates, Carbon oxides.
- **Specific extinguishing methods:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
- **Special protective equipment for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

# SECTION 6. ACCIDENTAL RELEASE MEASURES

- **Personal precautions, protective equipment and emergency procedures:** Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8). Beware of slipping hazard caused by spilled pellets on floors.

- **Environmental precautions:** Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
- **Methods and materials for containment and cleaning up:** Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dispersal of dust in the air.

# SECTION 7. HANDLING AND STORAGE

- **Technical measures:** See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- **Local/Total ventilation:** Use only with adequate ventilation.
- **Advice on safe handling:** Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Take care to prevent spills, waste and minimize release to the environment. Do not breathe decomposition products. Do not smoke or handle tobacco products in areas where contamination with resin particles can occur.
- **Conditions for safe storage:** Keep in properly labeled containers. Store in accordance with the particular national regulations. Store in a cool, dry, well-ventilated area.
- **Materials to avoid:** Do not store with strong oxidizing agents.

# SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| **Carbon black** | 1333-86-4 | TWA (Inhalable particulate matter) | 3mg/m$^3$ | ACGIH |
| | | TWA | 3.5mg/m$^3$ | NIOSH REL |
| | | TWA | 3.5mg/m$^3$ | OSHA Z-1 |

## Occupational exposure limits of decomposition products

| Components | CAS-No. | Value type | Control | Basis |
|---|---|---|---|---|

| | | (Form of exposure) | parameters / Permissible concentration | |
|---|---|---|---|---|
| **Hydrogen fluoride** | 7664-39-3 | TWA | 0.5ppm (Fluorine) | ACGIH |
| | | C | 2ppm (Fluorine) | ACGIH |
| | | TWA | 3ppm | OSHA Z-2 |
| | | C | 6ppm ( 5mg/$m^3$ ) | NIOSH REL |
| | | TWA | 3ppm ( 2.5mg/$m^3$ ) | NIOSH REL |
| **Carbonyl difluoride** | 353-50-4 | TWA | 2ppm | ACGIH |
| | | STEL | 5ppm | ACGIH |
| | | TWA | 2ppm ( 5mg/$m^3$ ) | NIOSH REL |
| | | ST | 5ppm ( 15mg/$m^3$ ) | NIOSH REL |
| **Carbon dioxide** | 124-38-9 | TWA | 5,000ppm | ACGIH |
| | | STEL | 30,000ppm | ACGIH |
| | | TWA | 5,000ppm ( 9,000mg/$m^3$ ) | NIOSH REL |
| | | ST | 30,000ppm ( 54,000mg/$m^3$ ) | NIOSH REL |

| | | | | |
|---|---|---|---|---|
| | | TWA | 5,000ppm（9,000mg/$m^3$） | OSHA Z-1 |
| **Carbon monoxide** | 630-08-0 | TWA | 25ppm | ACGIH |
| | | TWA | 35ppm（40mg/$m^3$） | NIOSH REL |
| | | C | 200ppm（229mg/$m^3$） | NIOSH REL |
| | | TWA | 50ppm（55mg/$m^3$） | OSHA Z-1 |

- **Engineering measures:** Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations. Processing may form hazardous compounds (see section 10). General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits.
- **Personal protective equipment:**
  - **Respiratory protection:** General and local exhaust ventilation is recommended. Where concentrations are above recommended limits or are unknown, use NIOSH/MSHA approved respirators.
  - **Hand protection:** Heat resistant gloves when handling hot resin or purges. Wash hands before breaks and at the end of workday.
  - **Eye protection:** Wear safety glasses with side-shields.
  - **Skin and body protection:** Skin should be washed after contact.
  - **Hygiene measures:** When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

# SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance:** pellets, granules
- **Color:** black
- **Odor:** odorless
- **Odor Threshold:** No data available
- **pH:** No data available
- **Melting point/freezing point:** > 290℃（> 554℉)
- **Initial boiling point and boiling range:** No data available
- **Flash point:** Not applicable
- **Evaporation rate:** Not applicable
- **Flammability (solid, gas):** Not classified as a flammability hazard, Not expected to form explosive dust-air mixtures
- **Upper / Lower flammability limit:** No data available

- **Vapor pressure:** Not applicable
- **Relative vapor density:** Not applicable
- **Density:** 2.15g/cm$^3$

- **Bulk density:** 1,220kg/m$^3$

- **Solubility(ies) (Water solubility):** Insoluble
- **Partition coefficient: n-octanol/water:** Not applicable
- **Autoignition temperature:** No data available
- **Decomposition temperature:** No data available
- **Viscosity (kinematic):** Not applicable
- **Explosive properties:** Not explosive
- **Oxidizing properties:** The substance or mixture is not classified as oxidizing

# SECTION 10. STABILITY AND REACTIVITY

- **Reactivity:** Not classified as a reactivity hazard.
- **Chemical stability:** Stable under normal conditions.
- **Possibility of hazardous reactions:** Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated temperatures.
- **Conditions to avoid:** None known. Avoid prolonged overheating above decomposition temperatures.
- **Incompatible materials:** Oxidizing agents, molten alkali metals.
- **Hazardous decomposition products (Thermal decomposition):** Hydrogen fluoride, Carbonyl difluoride, Carbon dioxide, Carbon monoxide.

# SECTION 11. TOXICOLOGICAL INFORMATION

- **Information on likely routes of exposure:** Skin contact, Ingestion, Eye contact, Inhalation.
- **Acute toxicity:** Not classified based on available information.
  - *Carbon black:* Oral LD_{50}\text{ (Rat)} > 10,000\text{ mg/kg} .
- **Skin corrosion/irritation:** Not classified based on available information.
  - *Carbon black:* Rabbit - No skin irritation.
- **Serious eye damage/eye irritation:** Not classified based on available information.
  - *Carbon black:* Rabbit - No eye irritation (OECD Test Guideline 405).
- **Respiratory or skin sensitization:**
  - Skin sensitization: Not classified based on available information.
  - Respiratory sensitization: Not classified based on available information.
  - *Carbon black:* Buehler Test (Guinea pig) - Result: negative (OECD Test Guideline 406).
- **Germ cell mutagenicity:** Not classified based on available information.
  - *Carbon black:* Ames test, gene mutation, sister chromatid exchange, micronucleus test - Results: negative.
- **Carcinogenicity:** Not classified based on available information.
  - *Carbon black assessment:* In this product, carbon black is bound within the polymer

matrix and is not available in respirable form during normal handling and processing. Weight of evidence does not support classification as a carcinogen under these conditions.
  - **IARC:** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
  - **OSHA:** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
  - **NTP:** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- **Reproductive toxicity:** Not classified based on available information.
- **STOT-single exposure:** Not classified based on available information.
- **STOT-repeated exposure:** Not classified based on available information.
- **Aspiration toxicity:** Not classified based on available information.

# SECTION 12. ECOLOGICAL INFORMATION

- **Ecotoxicity:**
  - *Carbon black:*
    - Toxicity to fish: LL_{50}\text{ (Danio rerio)} > 1,000 mg/L (96 h, OECD 203).
    - Toxicity to daphnia: EL_{50}\text{ (Daphnia magna)} > 5,600 mg/L (24 h, OECD 202).
    - Toxicity to algae: EL_{50}\text{ (Desmodesmus subspicatus)} > 10,000 mg/L (72 h, OECD 201).
- **Persistence and degradability:** No data available.
- **Bioaccumulative potential:** No data available.
- **Mobility in soil:** No data available.
- **Other adverse effects:** No data available.

# SECTION 13. DISPOSAL CONSIDERATIONS

- **Waste from residues:** Dispose of in accordance with local regulations. Do not dispose of waste into sewer. Mechanical recycling of clean scrap is encouraged where practicable.
- **Contaminated packaging:** Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

# SECTION 14. TRANSPORT INFORMATION

- **International Regulations:**
  - **UNRTDG:** Not regulated as a dangerous good
  - **IATA-DGR:** Not regulated as a dangerous good
  - **IMDG-Code:** Not regulated as a dangerous good
- **Domestic regulation:**
  - **49 CFR:** Not regulated as a dangerous good
- **Special precautions for user:** Not applicable

# SECTION 15. REGULATORY INFORMATION

- **CERCLA Reportable Quantity:** This material does not contain any components with a

CERCLA RQ.

- **SARA 304 Extremely Hazardous Substances RQ:** This material does not contain any components with a section 304 EHS RQ.
- **SARA 302 EHS TPQ:** This material does not contain any components with a section 302 EHS TPQ.
- **SARA 311/312 Hazards:** No SARA Hazards.
- **SARA 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.
- **US State Regulations:**
  - **Pennsylvania Right To Know:**
    - Poly(pentafluoroethyl trifluorovinyl ether/tetrafluoroethylene) (CAS: 31784-04-0)
    - Carbon black (CAS: 1333-86-4)
  - **California Prop. 65:** WARNING: This product can expose you to chemicals including Carbon black (airborne, unbound particles of respirable size), which is known to the State of California to cause cancer, and Carbon monoxide, which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. *(Note: In this product, carbon black is bound into the polymer matrix and does not pose an inhalation hazard under ordinary handling)*.

# SECTION 16. OTHER INFORMATION

## Hazard Rating Systems

- **NFPA 704:**
  - Health (Blue): **0**
  - Flammability (Red): **1**
  - Instability (Yellow): **0**
  - Special hazard: None
- **HMIS® IV:**
  - Health: **0**
  - Flammability: **1**
  - Physical Hazard: **0**
  - Chronic Hazard Flag: Absence of a chronic hazard (/)

## Key / Abbreviations

- **ACGIH:** USA. ACGIH Threshold Limit Values (TLV)
- **NIOSH REL:** USA. NIOSH Recommended Exposure Limits
- **OSHA Z-1:** USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air

Contaminants
- **OSHA Z-2:** USA. Occupational Exposure Limits (OSHA) - Table Z-2
- **TWA:** Time-weighted average
- **STEL:** Short-term exposure limit
- **C:** Ceiling limit

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