Technical Safety Data Report: ECO Powder

1. Product Composition and Safety Overview

ECO Powder is composed of high-safety raw materials, primarily derived from vegetable starch and food-grade additives. It is classified as a non-dangerous object under international standards.

2. Component Analysis and Material Safety

2.1 Vegetable Starch (Primary Raw Material)

- **Classification:** Non-dangerous object (U.N. Classification).
- **Dust Explosion Risk:** An explosion will only occur if the three critical conditions (particulate concentration, oxygen level, and ignition source) are simultaneously met. Under normal handling conditions, this risk is minimal.
- **Health Risk Assessments (WHO/IARC):** * No carcinogenic risk identified.
    - No risk of Pneumoconiosis (Black Lung).
- **Exposure Limits:**
    - **OSHA PEL:** 15 mg/m^3
    - **ACGIH TLV:** 10 mg/m^3
    - **Japan Society for Occupational Health (Second Class Particulates):** 1 mg/m^3 (Inspiratory), 4 mg/m^3 (Total particulates).

2.2 Dispersing Agent (Additive)

- **Applications:** Food additives, nutritional enhancement minerals, yeast food, gum base, and emulsifiers.

- **Safety Evaluation (JECFA):** Ranked as **A(1)** (Evaluation completed; Acceptable Daily Intake (ADI) set or toxicity deemed low enough to make ADI unnecessary).

- **MTDI (JECFA):** 70 mg/kg body weight/day.

- **Toxicity:**

    - **Acute Oral Toxicity (Rat LD50):** > 1,000 mg/kg.

    - **Hazard Classification:** Does not meet any hazardous classification standards (Japanese Standard).

- **Exposure Limits (Japan Society for Occupational Health - Third Class Particulates):** 2 mg/m^3 (Inspiratory), 8 mg/m^3 (Total particulates).

2.3 Water Repellent Material (Specialized Additive)

- **Applications:** Food container packing, coating flux, corrosion-proof agents, and electrification stabilizers.

- **Regulatory Compliance:**

    - **Japan Hygienic Olefin and Styrene Plastics Association:** Registered on the Positive List.

    - **EU Directives:** Classified as a non-hazardous substance.

    - **International Shipping:** Classified as Non-dangerous goods.

- **Toxicity and Human Impact:**

    - **Acute Oral Toxicity (Rat LD50):** > 5,000 mg/kg.

    - **Animal Testing:** No repeated-dose toxicity, mutagenicity, carcinogenicity, or reproductive/developmental toxicity found.

- **Human Studies:** Clinical tests (60–100g/day for 3–4 weeks) showed no harmful actions. No reports of oral toxicity or sensitization (respiratory/skin) have been recorded.

- **Occupational History:** No cases of Pneumoconiosis reported among 200+ producers monitored over a ten-year period.

- **Exposure Limits:**

  - **ACGIH-TLV:** 10 mg/m^3

  - **MAK Value:** 4 mg/m^3

  - **Japan Society for Occupational Health (Third Class Particulates):** 2 mg/m^3 (Inspiratory), 8 mg/m^3 (Total particulates).

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3. Conclusion

Based on the evaluations by international bodies (WHO, IARC, JECFA, ACGIH), ECO Powder is verified as a safe material for its intended industrial and food-related applications. It does not fall under hazardous substance classifications and poses no known carcinogenic or systemic health risks under prescribed exposure limits.