MATERIAL SAFETY DATA SHEET
PVC COMPOUND (NSF APPROVED)

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

RJF INTERNATIONAL CORPORATION 3875 Embassy Parkway Fairlawn, OH 44333 Tel: (330) 668-7680	**EMERGENCY TELEPHONE NO.:** CHEMTREC: (800) 424-9300
TRADE NAME: PVC COMPOUND (NSF APPROVED)	**MSDS NUMBER:** AN#5015 Revision 3 See Section 16 for RJF formulations covered by this document
CHEMICAL NAME: Polyvinylchloride	**SYNONYMS:** PVC Powder or Pellets
PREPARED BY: Clayton Environmental Consultants, Inc.	**DATE OF ISSUE:** 09/91 **DATE OF LATEST REVISION:** 06/20/97

2. INGREDIENTS

Component	CAS #	Percent	ACGIH (TLV)	OSHA (PEL)	Units
Polyvinylchloride Resin	9002-86-2	37-56	Not Est.	Not Est.	Not Est.
lasticizer	68515-48-0	12-31	Not Est.	Not Est.	Not Est.
Calcium Carbonate	1317-65-3	16-29	10 (T)	15 (T) 5 (R)	mg/M^3 mg/M^3
Alumina Trihydrate	21645-51-2	0-17	Not Est.	Not Est.	Not Est.
Epoxidized Soybean Oil	8013-07-8	1-4	10 (T)	15 (T) 5 (R)	mg/M^3 mg/M^3
Antimony Trioxide	1309-64-4	0-3	0.5 (T)	0.5 (T)	mg/M^3
Titanium Dioxide	13463-67-7	0-3	10 (T)	15 (T) 5 (R)	mg/M^3 mg/M^3
Zinc Stearate	557-05-1	0-1	10 (T)	15 (T) 5 (R)	mg/M^3 mg/M^3
Carbon Black	1333-86-4	0-0.5	3.5 (T)	3.5 (T)	mg/M^3
Quartz	14808-60-7	0-0.3	0.1 (R)	0.1 (R)	mg/M^3

T = Total Particulate Matter

R = Respirable Fraction of Total Particulate Matter

RJF INTERNATIONAL CORPORATION
MATERIAL SAFETY DATA SHEET
PVC COMPOUND - POWDER/PELLETS

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

RJF INTERNATIONAL CORPORATION 3875 Embassy Parkway Fairlawn, OH 44333 Tel: (330) 668-7680	EMERGENCY TELEPHONE NO.: CHEMTREC: (800) 424-9300
TRADE NAME: PVC COMPOUND - Powder/Pellets	MSDS NUMBER: AN#5017 Revision 1 See Section 16 for the formulations covered by this MSDS
CHEMICAL NAME: Polyvinylchloride	SYNONYMS: PVC Powder or Pellets
PREPARED BY: Clayton Environmental Consultants, Inc.	DATE OF ISSUE/REVISION: Issue: 11/06/91 Revised: 7/10/97

2. INGREDIENTS

Component	CAS #	Percent	ACGIH (TLV)	OSHA (PEL)	Units
Polyvinylchloride Resin	9002-86-2	35-65	Not Est.	Not Est.	Not Est.
Plasticizer	68515-48-0 33707-08-1	10-40	Not Est.	Not Est.	Not Est.
Calcium Carbonate	1317-65-3	10-30	10 (T)	15 (T) 5 (R)	mg/M^3 mg/M^3
Ba/Zn & Epoxy Stabilizers	Not Est.	0-5	Not Est.	Not Est.	Not Est.
Acrylic Modifiers	Not Est.	0-5	Not Est.	Not Est.	not Est.
Epoxidized Soy Bean Oil	8013-07-8	0-4	Not Est.	Not Est.	Not Est.
Titanium Dioxide	13464-67-7	0-2	10 (T)	10 (T) 5 (R)	mg/M^3 mg/M^3
Carbon Black	1333-86-4	0-1	3.5 (T)	3.5 (T)	mg/M^3
Quartz	14808-60-7	0.3-0.4	0.1 (R)	0.1 (R)	mg/M^3

T = Total Particulate Matter

R = Respirable Fraction of Total Particulate Matter

EMERGENCY OVERVIEW

In its manufactured and shipped state the product is considered non-hazardous. Pick up released materials and place in appropriate containers for reuse or disposal. Dusts and particulate matter contain quartz and/or carbon black which have been identified as potential carcinogens. Wear appropriate personal protective equipment is significant amounts of dusts or particulate matter may be present. Product involved in fire situations may release toxic combustion products including hydrochloric acid and organic and inorganic materials of unknown composition and toxicity. Wear appropriate personal protective equipment and keep unnecessary individuals up wind of the area. Cool product in or near fires with a water spray or fog. Any wastes generated during cleanup operations should be evaluated with respect to hazardous and solid waste regulations and disposed of in a properly permitted facility in accordance with all local, state, and federal regulations.

POTENTIAL HEALTH EFFECTS:

In its manufactured and shipped state the product is considered non-hazardous. Dusts and/or particulate matter may be generated during mechanical handling while fumes and vapors may be generated during high temperature processing operations.

Eye: Particulate matter and fumes and vapors may cause irritation.

Skin Contact: Particulate matter and fumes and vapors may cause irritation.

Skin Absorption: Not expected to be a route of entry into the body.

Ingestion: Not expected to be a major route of entry. Ingestion of large quantities of particulate matter may cause gastrointestinal distress.

Inhalation: Particulate matter and fumes and vapors may cause irritation of the mouth, throat, mucous membranes, and respiratory tract.

Chronic & Carcinogenicity: Prolonged contact with dusts and particulate matter that may be generated by mechanical abrasion may cause dermatitis. Prolonged exposure to high concentrations of product dusts may cause a benign pneumoconiosis with resultant decrease in lung function. Product contains quartz and/or carbon black which have been identified as potential carcinogens. See Section 11.

Prolonged exposure to respirable crystalline silica (quartz) may cause a progressive, disabling lung disorder (silicosis). Symptoms may include, cough, shortness of breath, wheezing, decrease in pulmonary function, and recurring non-specific pulmonary illnesses. The onset of symptoms, except in cases of massive exposures, is usually gradual over a period of several years and is accompanied by changes in the x-ray picture of the lungs.

Prolonged exposures to high concentrations of particulate matter and fumes and vapors may possibly aggravate pre-existing skin and lung disorders.

4. FIRST AID MEASURES

Inhalation: Remove exposed person to fresh air. If breathing is difficult, oxygen may be administered. If breathing has stopped, artificial respiration should be started immediately. Seek medical attention.

Eyes: Flush with tepid water for at least 20 minutes holding the eyelids wide open. Seek medical attention if irritation develops.

Skin: Wash thoroughly with mild soap and water. Seek medical attention if irritation develops. Remove any contaminated clothing and launder thoroughly before reuse.

Ingestion: Not expected to be an important route of entry into the body. If large amounts of particulate matter are ingested it may cause gastrointestinal distress. Seek medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT: NA **LEL:** NA **UEL:** NA **AUTO IGN. TEMP.:** NA

Use water, dry chemical, or carbon dioxide to extinguish fires involving the product. roduct in or near fires should be cooled with a water spray or fog if compatible with the other materials involved in the fire. A self contained breathing apparatus (SCBA) operating in the positive pressure mode and full fire fighting protective clothing should be worn for combating fires. See Section 10 for decomposition products that might be expected in fire situations.

6. ACCIDENTAL RELEASE MEASURES

Pick up product and return to original packing if reusable. If not reusable, place in DOT approved containers for disposal. Any wastes generated during cleanup operations should be evaluated with respect to hazardous and solid waste regulations and disposed of in a properly permitted facility in accordance with all local, state, and federal regulations.

7. HANDLING AND STORAGE

Store product at ambient temperatures out of contact with the elements. Keep from contact with strong mineral acids and oxidizers. Dusts and/or particulate matter that may be generated during handling or processing should be cleaned up by vacuuming or wet mopping.

8. EXPOSURE CONTROL - PERSONAL PROTECTION

ENGINEERING CONTROLS: Not generally required. If significant amounts of dusts are generated during processing or handling, the need for local exhaust ventilation (LEV) should be evaluated by a professional industrial hygienist. LEV should be provided if the fumes and vapors generated by high temperature processing have not been thoroughly characterized. Design details for local exhaust ventilation systems may be found in the latest edition of "Industrial Ventilation: A Manual of Recommended Practices" published by the ACGIH Committee on Industrial Ventilation, P.O. Box 16153, Lansing, MI 48910. Local exhaust ventilation systems should be designed by a professional engineer.

RESPIRATORY: Respiratory protection is not normally required. If appreciable dusts, fumes, or vapors are generated during handling or processing, the operation should be evaluated by a professional industrial hygienist to determine the need for respiratory protection. If respiratory protection is deemed necessary, use, as a minimum, a NIOSH approved 1/2 facepiece respirator equipped with cartridges approved for organic vapors, acid gases, and particulate matter with an exposure limit of not less than 0.05 mg/M^3.

EYE PROTECTION: Where eye contact is possible with particulate matter, safety glasses with side shields are recommended. Where significant amounts of fumes or vapors may be generated, chemical safety goggles are recommended.

PROTECTIVE GLOVES: Polymeric gloves are recommended to prevent irritation.

GENERAL: A polymeric coated apron or other body covering is recommended where there is a possibility of regular work clothing becoming contaminated with the product. All soiled or dirty clothing and personal protective equipment should be thoroughly cleaned before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & PHYSICAL STATE: Various Colored Powders or Pellets

MELT POINT: ND

VAPOR DENSITY (AIR=1): NA

OCTANOL/WATER PARTITION COEFFICIENT: ND

VAPOR PRESSURE: NA

EVAPORATION RATE BuOAC = 1: NA

ODOR: None

SPECIFIC GRAVITY/BULK DENSITY: 1.4 - 1.5

% VOLATILE BY VOLUME: Not Volatile

BOILING POINT: NA

9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

% SOLUBILITY (H_2O): Insoluble pH: NA

OTHER: NA

10. STABILITY AND REACTIVITY

STABILITY & POLYMERIZATION: Product is stable. Hazardous polymerization will not occur.

INCOMPATIBILITY (CONDITIONS TO AVOID): Avoid contact with strong mineral acids and oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: May produce dense smoke, oxides of carbon, hydrochloric acid, low molecular weight organic species whose composition and toxicity has not been characterized, and metal oxide fumes.

SPECIAL SENSITIVITY: Polyvinylchloride (PVC) dusts may form weakly explosive mixtures in air. It is, however, highly unlikely that such mixtures can be formed under normal and expected conditions of use and if normal precautions are taken.

11. TOXICOLOGICAL INFORMATION

PVC materials have a very low acute toxicity. PVC materials have an acute LD_{50} in rats of greater than 10 grams per kilogram of body weight. The product, as with all PVC materials, contains a small amount, <5 ppm, of residual vinyl chloride monomer which has been identified as a human carcinogen. OSHA has established the following exposure limits for vinyl chloride: a 1 ppm 8 hour TWA PEL, a 5 ppm STEL (15 minutes) and a 0.5 ppm AL. Industrial hygiene studies have shown that under normal and expected conditions of use of PVC materials, exposures are well below applicable limits.

Inhalation studies with rats at concentrations of 6 to 8 times the PEL or TLV for antimony trioxide for 6 hours a day, 5 days a week for a year indicated a significant increase in the number of pulmonary tumors. There is also evidence that antimony compounds can cause birth defects in rats and mice at high dose levels. The National Institute for Occupational Safety and Health has stated that these finding are inconclusive as the relate to human health.

All formulations except 62222, 62375, and 62422 contain small amounts of carbon black in the pigment system. In determining that carbon black is a potential human carcinogen (2B), the IARC cites a number of animal studies that indicate the material causes an increased incidence of lung cancers.

All formulations contain small amounts of residual quartz from the calcium carbonate filler. The IARC cites a number of epidemiological studies that indicate an increased risk of developing lung cancer among workers who are exposed to respirable crystalline silica. The majority of the cited studies did not take into account confounding factors such as smoking and other chemical exposures.

Animal studies are cited by the IARC where inhalation of respirable crystalline silica or intratracheal installation produced adenocarcinomas and squamous-cell carcinomas in rats. A similar response was not elicited from hamsters.

Similar evidence for the carcinogenicity of respirable crystalline silica is cited by the National Toxicology Program in its *Sixth Annual Report on Carcinogens, 1991 Summary*.

The antimony trioxide, carbon black and quartz components of the product are bound in a PVC matrix and are not expected to be bioavailable.

12. ECOLOGICAL INFORMATION

Detailed studies have not been conducted concerning the environmental fate of the product. It is, however, not expected to present a hazard to aquatic and terrestrial flora and fauna.

13. DISPOSAL CONSIDERATIONS

The product is not considered hazardous under current EPA hazardous waste regulations. Disposal by recycling is the preferred method of disposal. Alternatively, the product may be disposed of in an approved landfill. All wastes should be evaluated in conjunction with applicable solid and hazardous waste regulations, Toxicity Characteristic Leaching Procedures (TCLP), and disposed of as appropriate.

Empty containers will contain product residues. Observe proper safety and handling precautions. Do not allow empty containers to be used for any purpose except to store and ship original product.

It is the user's responsibility to dispose of all wastes in accordance with all local, state, and federal regulations at properly permitted or authorized facilities.

14. TRANSPORTATION INFORMATION

DOT Classification: Not currently regulated under Department of Transportation regulations.

15. REGULATORY INFORMATION

OSHA Hazard Communication Classification for dusts and fumes and vapors: Irritant, Skin Hazard, Lung Hazard, Carcinogen. SARA Title III Classification for dusts and fumes and vapors: Acute Health Hazard; Chronic Health Hazard.

Antimony compounds are reportable under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. Formulation 62222 contains 2.3% antimony trioxide.

The residual vinyl chloride monomer of less than 5 ppm, CAS # 75-01-4, in the product has been listed as a Substance Known to Cause Cancer by the State of California and as an Extraordinarily Hazardous Substance by the State of Massachusetts.

Exposure to vinyl chloride is regulated by OSHA under 29 CFR 1910.1017. Users of the product are urged to obtain and read these standards to determine how their operations may be affected. See Section 11.

The product contains less than 0.3% crystalline silica. Crystalline silica whose particle size is in the respirable range, <10 microns, has been listed by the State of California as a substance that is known to cause cancer. Crystalline silica has been listed as an Extraordinarily Hazardous Substance and Carcinogen by the State of Massachusetts.

The calcium carbonate component of the product contains less than 1 ppm each of arsenic and lead compounds. These materials have been listed as Substances Known to Cause Cancer or Birth Defects by the State of California.

The antimony trioxide component of the product has been listed as a Substance Known to Cause Cancer by the State of California.

WHMIS Classification: Non-hazardous

16. OTHER INFORMATION

The following RJF International formulations are covered by this document. 22166, 22415, 62099, 62136, 62222, 62265, 62375, 62403, 62412, 62422, 62427, and 62428.

Not Est. = Not Established; N.A. = Not Applicable; N.D. = Not Determined

NFPA Classifications: Health = 1; Fire = 1; Reactivity = 0

All components of the product are included in the Toxic Substances Control Act (TSCA) Inventory.

Notice From RJF International. The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. The opinions expressed herein are those of qualified experts within RJF International. We believe that the information contained herein is current as of the date of issue of this Material Safety Data Sheet. Since the use of this information and these opinions and the conditions of use of the product are not within the control of RJF International, it is the users obligation to determine conditions of safe use of the product.

RJF International requests the users of this product study this Material Safety Data Sheet and become aware of product hazards and safety information. To promote safe use of this product, users should notify their employees, agents, and contractors of the information on this Material Safety Data Sheet and any product hazards and safety information.