

Issue Date:

Bulletin G-62 CPD

Material Safety Data

Geon® Vinyl Compound

24541001

SECTION I

<u>Manufacturer's Name</u> The BFGoodrich Company Chemical Group	<u>Telephone Number</u> (216) 447-6000	<u>Transportation Emergency Telephone</u> CHEMTREC: (800) 424-9300
<u>Address</u> 6100 Oak Tree Blvd. Cleveland, Ohio 44131	<u>Chemical Family</u> Vinyl resin: Ethene, chloro-, homopolymer	<u>Trademark</u> Geon® Vinyl
<u>Chemical Name/Synonyms</u> Poly(vinyl chloride), PVC, vinyl.	<u>CAS Registry Number</u> Not applicable to compounds. CAS number for vinyl resin: 9002-86-2	<u>Formula</u> Vinyl resin* plus functional additives. *(CH ₂ CHCl) _n

SECTION II - HAZARDOUS INGREDIENTS

- o Geon® vinyl compounds are not hazardous materials under current provisions of the Occupational Safety and Health Administration's (OSHA) final rule for hazard communication (29CFR1910.1200).
- o Vinyl resin used in compound contains a very small amount of residual vinyl chloride monomer (CAS Registry Number: 75-01-4). Extensive product and process improvements have resulted in the reduction of residual monomer to average levels less than 1-5 parts per million (ppm) in the resins used to manufacture Geon® vinyl compound. Today there is virtually no employee exposure to vinyl chloride monomer above the OSHA action level of 0.5 ppm when handling or processing Geon® vinyl compound. Please read Appendix 1 for workplace exposure limits.
- o The sum total of all ingredients present in a compound will emit vapors and odors during processing. The visible fumes that occur during normal processing are mainly water vapor. Trace amounts of hydrogen chloride -- an irritant -- are possible if there is any hangup or stagnation of compound in processing equipment. Vapors from non-PVC components are principally trace amounts of volatiles from stabilizers, plasticizers, lubricants, etc. Some people may be sensitive to fumes or odors from these additives. The primary effect is irritation to the eyes, respiratory tract or skin. To protect your employees' health, conduct any operation emitting fumes or vapors under well-ventilated conditions.
- o Additives
Functional additives mixed with vinyl resin to create compounds may include:
 - Stabilizer generally in amounts less than 5% by weight. These may include organometallics such as tin, lead, cadmium, barium and zinc and metallic salts such as basic lead carbonate and basic lead sulfate.

25511002

Extinguishing Media

Water is most effective for large and small fires. ABC dry chemical, AFFF, and protein type air foams are also effective for small fires. Geon® vinyls are "ordinary combustibles" (NFPA defined Class A). Carbon dioxide is not generally recommended for use on Class A fires as a lack of cooling capacity may result in reignition.

Special Fire Fighting Procedure

Wear positive pressure, Self-Contained Breathing Apparatus (SCBA). Personnel not having suitable respiratory protection must leave the area to prevent significant exposure to toxic combustion gases from any source. In enclosed or poorly ventilated areas, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

Combustion Products

When forced to burn, the primary combustion gases from vinyl compound will be hydrogen chloride, carbon monoxide and carbon dioxide. Other gases will include small amounts of benzene and aromatic and aliphatic hydrocarbons. Plasticized compounds will also contribute aliphatic olefins.

The combustion products of vinyl, like those from other natural and synthetic materials, must be considered toxic. Like wood, paper and cotton, the major hazard is carbon monoxide. Carbon monoxide is an asphyxiant while hydrogen chloride is irritating. When vinyl is burned, it will have a detectable, pungent odor.

Contrary to some published statements, chlorine is not known to be a combustion gas of vinyl. Moreover, definitive work at the National Bureau of Standards detected only trace amounts -- less than 1.5 ppm -- of phosgene in combustion gases of vinyl compound.

Unusual Fire and Explosion Hazards

- o Corrosive fumes. Hydrogen chloride has a corrosive effect on many metals. Affected equipment surfaces and unprotected structural elements of buildings should be washed to remove corrosive deposits as soon as possible after depositions have occurred.
- o Dust explosion hazard. Pellet compound does not represent any explosion risk because of its large particle size. Powder compound may have dust explosion potential because of fine particle size fillers and additives or liquids added to vinyl resin.

For plasticized powder compound, the NFPA reports the following for a PVC/plasticizer mixture (i.e., 67% PVC/33% DOP):*

Explosibility index:	2.9 (Strong)
Ignition sensitivity:	3.6 (Strong)
Explosion severity:	0.8 (Moderate)
Ignition temp., dust cloud:	320°C (608°F)

*NFPA 654-1975, "Prevention of Dust Explosions in the Plastics Industry."

25511003

Routine inhalation of dust of any kind should be avoided. Exercise care when dumping bags, sweeping, mixing or doing other tasks which can create dust. Where large amounts of any dust may occur, wear a respirator approved by NIOSH/MSHA to protect against nuisance dust.

SECTION VI - REACTIVITY

<u>Stability</u>	<u>Hazardous Polymerization</u>
Stable	Will not occur

Hazardous Decomposition Products

Hydrogen chloride, carbon monoxide, carbon dioxide, and small amounts of benzene and aromatic and aliphatic hydrocarbons. Plasticized compounds will also contribute aliphatic olefins.

Incompatibility (materials to avoid)

Avoid contact with acetal or acetal copolymers and with amine containing materials during processing. At processing conditions these materials are mutually destructive and involve rapid degradation. Thoroughly purge and mechanically clean processing equipment to avoid even trace quantities of these materials from coming in contact with each other. Prevent cross contamination of feedstocks.

SECTION VII - SPILL OR LEAK PROCEDURE

Steps to be taken in case material is released or spilled

Vacuum or sweep into a closed container for reuse or disposal.

Waste Disposal Method

Dispose of waste in a licensed landfill or by incineration in accordance with federal, state and local regulations. For waste disposal purposes, Geon® vinyl compounds are not defined or designated as hazardous by current provisions of the Federal Resource Conservation and Recovery Act (RCRA -- 40CFR261). If incinerated, be aware that corrosive hydrogen chloride is generated.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation

Provide efficient exhaust ventilation to draw dust and/or fumes away from workers to prevent routine inhalation. Compounding, hot melt processing (extruding, molding, etc.), cutting or sawing, machining, regrinding, heat welding, thermoforming, and other processing or post-processing operations involving heat sufficient to result in polymer breakdown should be examined to ensure adequate ventilation.

Respiratory Protection

Not normally required.

- o If overheating or clean-up results in more smoke or fumes than can be adequately exhausted by the plant ventilation system, a NIOSH/MSHA-approved combination high-efficiency particulate filter with organic vapor cartridge can be used. Gross decomposition may require the use of positive pressure, self-contained breathing apparatus.

24547004

Sprinklered warehouse areas are recommended. Although most vinyl compound by itself will not support combustion and is not a fire hazard, materials such as wooden pallets, cardboard boxes and other combustibles can provide sufficient fuel to cause vinyl to burn. Sprinkler protection will scrub much of the hydrogen chloride from the fire atmosphere, thereby minimizing potential corrosion of unprotected structural elements of the building, and its contents.

SPECIAL NOTE: Compound at or above normal processing temperature must never be allowed to accumulate in thick masses, or it will begin to thermally decompose and to swell due to internal gassing. Gassing may cause a large mass to explode if its outside surface is hardened. Molten waste should be collected as strands or flattened to 2-inches or less, and quenched in a drum of cold water provided for this purpose. Decomposing material should be removed to a well-ventilated area, preferably outdoors.

SECTION X - TRANSPORTATION

For domestic transportation purposes, vinyl compounds are not classified as hazardous by the U.S. Department of Transportation under Title 49 of the Code of Federal Regulations, 1983 Edition.

- o DOT Proper Shipping Name: Not applicable
- o DOT Hazard Class: Not hazardous
- o DOT Label: None required
- o UN/NA Hazard No.: Not applicable

SECTION XI - HAZARD CODES

<u>NFPA 704</u> ¹		<u>HMIS</u> ²	
Health:	2	Health:	0
Flammability:	1	Flammability:	1
Reactivity:	0	Reactivity:	0
Special:	None	Personal Protection:	(Wear safety glasses. Wear gloves and/or dust respirator when needed.)

- (1) National Fire Protection Association.
- (2) Hazardous Materials Identification System, National Paint and Coatings Association.

DISCLAIMER OF LIABILITY

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, express or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user.

22511005

APPENDIX 2 - FUNCTIONAL ADDITIVES USED IN PVC COMPOUND

Additives chosen for a specific compound will vary according to processing and final product requirements. The following list does not represent all possible additives but it does represent typical ingredients which may be used in vinyl compounds.

- o Stabilizer inhibits thermal degradation of the compound during processing and throughout the service life of the product. Stabilizers may be grouped into four classes: organometallic tins, lead salts, mixed metal salts and special-purpose stabilizers. The most common organometallic tin stabilizers are tin mercaptides, mainly methyl tin and butyl tin. Some stabilizers, including di-n-octyl and dimethyl tin mercaptide, are FDA acceptable for food contact applications. Lead salts, like dibasic lead phosphite, are mainly organic lead compounds and include sulfates, silicates, phosphates, stearates, phthalates and maleates. Mixed metal salts include calcium-zinc and barium-cadmium systems. Special-purpose stabilizers include flame retardants such as antimony derivatives and ultraviolet light absorbers.
- o Processing aids. The most common processing aids used with vinyl are acrylics or styrene-acrylonitrile copolymers present at levels between 0-5.0% by weight.
- o Impact modifiers commonly used with vinyl include acrylates, chlorinated polyethylene, methacrylate-butadiene-styrene (MBS), acrylonitrile-butadiene-styrene (ABS), and rubber. Although not present in all compounds, when used, impact modifier may range between 0-20% by weight.
- o Fillers. Most common are metal carbonates, mainly calcium carbonate, which is unusually in the form of ground limestone and coated with stearic acid. Other fillers may be silicates, gypsum, clay, alum and barytes.
- o Plasticizer. Phthalate esters are most common. Many kinds of plasticizer are available such as dioctyl, dihexyl and dibutyl phthalates, phosphate esters such as isodecyl diphenyl phosphate, aliphatic alcohol esters such as dioctyl adipate, polymeric plasticizer such as polyesters of adipic acid, and monomeric esters such as trimellitate.
- o Lubricants include paraffin waxes, mineral oils, polyethylene, salts of fatty acids and fatty acids, esters and amides. Lubricants would be present up to approximately 5% or less.
- o Pigment. A list of common pigments appears in Section II. Most pigments are present at 0-5% to achieve opacity and color. In weatherable compounds, titanium dioxide may be present at concentrations up to 10-15% to achieve acceptable ultraviolet light screening.