

Prepared by
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Issue Date: January, 1988

Bulletin G-62 CMPD R1

Material Safety Data

Geon® Vinyl Compound

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ABOUT THIS BULLETIN

The data in this bulletin apply to all Geon® vinyl compounds except polyblends (blend of polyvinyl chloride and nitrile rubber). Geon® vinyl compounds are mixtures of thermoplastic polyvinyl chloride or copolymer resin, which is a white granular powder, and functional additives such as processing aid, heat stabilizer, plasticizer, lubricant, impact modifier, pigment and/or other ingredients. Compound may be prepared as either granules (i.e., pellets of varying size and shape) or free-flowing powders.

* Pellet cube compound does not present any inhalation hazard because of its physical form. Powder compound, because of its fine particle size, may result in release of airborne dust. Powder compound that contains lead may present a lead dust exposure hazard. Powder compound containing lead will be labelled as to its content.

The sum total of all compounding ingredients processed under conditions that could result in mass-melting of either pellet, cube or powder compound may release vapors and odors that could be irritating to the respiratory tract, eyes and skin. It is recommended the Geon® vinyl compound be handled under well ventilated conditions to avoid significant employee exposure.

USER RESPONSIBILITY

The data in this bulletin does not include any information on the suitability of vinyl for any particular application nor does it discuss any precautions that may apply to specific end products. Moreover, this bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. ~~We must rely on you to use this information to develop appropriate work practice guidelines and employee instructional programs for your operation.~~

It is your responsibility
For information pertinent to resin, please read BFGoodrich Bulletin G-62 RES, "Material Safety Data, Geon® Vinyl Resin." Also, a separate safety data bulletin is available for Geon® vinyl polyblend compounds.

SPECIAL NOTE: Vinyl chloride and polyvinyl chloride (PVC) are not the same material. Vinyl chloride is a flammable gas that is strictly regulated by DOT, EPA and OSHA. Through a chemical reaction, this gas -- known as a monomer -- is converted to a non-hazardous white granular powder called polyvinyl chloride resin, PVC or simply, vinyl. It is this vinyl resin that is then combined with functional additives to make compound. Vinyl resin is not a cancer suspect agent. Moreover, the reaction is not reversible. That is, thermal processing or decomposition will not cause polyvinyl chloride to revert back to vinyl chloride monomer. (See Section II and Appendix 1.)

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SECTION I

<u>Manufacturer's Name</u>	<u>Telephone Number</u>	<u>Transportation Emergency Telephone</u>
The BFGoodrich Company	(216) 447-6000	CHEMTREC: (800) 424-9300
<u>Chemical Group</u>		
Geon Vinyl Division		
<u>Address</u>	<u>Chemical Family</u>	<u>Trademark</u>
6100 Oak Tree Blvd.	Vinyl resin:	Geon® Vinyl
Cleveland, Ohio 44131	chloroethene polymer or copolymer	
<u>Chemical Name/Synonyms</u>	<u>CAS Registry Number</u>	<u>Formula</u>
Poly(vinyl chloride), PVC, vinyl, copolymer.	Not applicable to compounds.	Vinyl resin* plus functional additives.



- Virtually all Geon® vinyl compounds are manufactured with homopolymer polyvinyl chloride resin (CAS Registry Number: 9002-86-2). We do market a limited number of compounds based upon vinyl chloride/vinyl acetate copolymer resin (CAS Number 25265-90-1). *Added as 9003-22- in G-62 RES, Rev 11/87.*
- Specific grades of Geon® vinyl compounds comply with applicable provisions of the U.S. Food and Drug Administration regulations governing food contact (21CFR). Please consult product literature for details.
- Geon® vinyl resin and the functional additives used to manufacture compound are included in the Toxic Substances Control Act, Inventory of Chemical Substances, developed by the U.S. Environmental Protection Agency.

SECTION II - HAZARDOUS INGREDIENTS

	<u>CAS Number</u>	<u>Amount In Product*</u>	<u>ACGIH TLV-TWA</u>	<u>OSHA PEL</u>
Lead Stabilizer ¹	NA	0-5%	0.15 mg/m ³	0.05 mg/m ³
Organic Tin Compounds ²	NA	0-10%	0.1 as tin	0.1 as tin
Vinyl Chloride ³	75-01-4	< 0.001%	5 ppm AI	1 ppm

*Typical amount - not a specification.

Notes: • TLV-TWA: Threshold Limit Value - Time Weighted Average for concentration of the chemical substance in the ambient workplace air for a normal 8-hour workday, 40-hour workweek, to which nearly all workers may be repeatedly exposed without adverse effect. American Conference of Governmental Industrial Hygienists. 1987 - 1988 Edition.

- OSHA PEL: OSHA Permissible Exposure Limit, 8-hour TWA. 29CFR1910.1000
- NA means "not applicable"
- "<" means less than

Looks like ACGIH has dropped the

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¹A few powder compounds are made with lead stabilizers. These compounds are labelled with a lead dust warning. Improper handling may create a lead dust hazard. Toxic dust respirator protection or local exhaust ventilation is recommended.

²The sum total of ingredients present in virtually any thermoplastic compound will emit vapors and odors during processing. The visible fumes that occur during normal processing of vinyl compound 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 resulting in degradation of in-process material. Vapors from non-PVC components are principally trace amounts of volatiles from stabilizers, plasticizers, lubricants, etc. Organic tin compounds may be used as stabilizers in some Geon® compounds. Container label will indicate their presence in the compound you are using. Some people may be sensitive to process 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.

³See Appendix 1.

SECTION III - PHYSICAL DATA (Typical data, not specifications)

Solubility in Water \
Slight

Specific Gravity (H₂O =1)
Range: 1.35-1.55

Appearance and odor

Pigmented or unpigmented pellets or powder. Practically odorless or bland odor. The appearance of pellet compound will vary from cubical granules measuring approximately 3/16-inch per side to spheres to wafers depending upon manufacturing method.

Other

Characteristics such as vapor pressure, vapor density, boiling point and evaporation rate are not applicable to solid materials such as vinyl compound.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

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Ignition Characteristics (ASTM D-1929)

Rigid vinyl compound (i.e., no plasticizer) has a flash-ignition temperature of about 391°C (735°F) and a self-ignition temperature of about 454°C (850°F). When plasticizer is added, ignition temperatures decrease. At a 30% plasticizer content, the flash-ignition temperature will be about 321°C (610°F) and the self-ignition temperature will be about 435°C (815°F). By themselves, most vinyl compounds (i.e., rigid compound and compound with less than about 35% plasticizer) will not support combustion because they require a higher concentration of oxygen for burning than is present in the earth's atmosphere. Any vinyl compound can be forced to burn by continuous application of intense heat. Like all combustible material, protect from open flame and maintain proper

Store flammable liquids

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Flash-Ignition Temperature: The lowest initial temperature of air passing around the specimen at which sufficient combustible gas is evolved to be ignited by a small external pilot flame.

Self-Ignition Temperature: The lowest initial temperature of air passing around the specimen at which, in the absence of an ignition source, ignition occurs of itself, as indicated by an explosion, flame or sustained glow.

Extinguishing Media

Water is most effective. ABC dry chemical, AFFF, and protein type air foams are also effective. 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 an irritant. When vinyl is burned, it will have a detectable, pungent odor.

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Unusual Fire and Explosion Hazards

- 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. *with a water based detergent solution*
- 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 National Fire Protection Association (NFPA) reports the following for a PVC/plasticizer mixture (i.e., 67% PVC/33% dioctyl phthalate):*

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Explosibility index: 2.9 (Strong)
Ignition sensitivity: 3.6 (Strong)
Explosion severity: 0.8 (Moderate)
Ignition temp., dust cloud: 3200C (6080F)

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

Because of the wide variety of possible ingredient combinations, operations using plasticized or unplasticized powder compound should be evaluated on an individual basis. Implement precautions to control or eliminate likely sources of ignition, such as static build-up. Maintain good housekeeping, notably, ventilation, to prevent accumulation of potentially explosive dust concentrations. Properly maintain and operate dust control devices.

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value

5 mg/m³ respirable for

powder compound not

containing lead. *0.15 mg/m³ for powder compound containing lead.*

Routes of Entry

Inhalation, ingestion or eye contact. *

Carcinogen Status

Not listed by IARC, NTP or OSHA.

See Appendix.

Effects of Acute Overexposure

Cubes or Pellets - No significant hazards.

Powder - Eye contact with powder compound may result in mechanical eye irritation.

Effects of Chronic Overexposure

Cubes or Pellets - No significant hazards.

Powder - Inhalation or ingestion of lead containing powder compound may result in lead poisoning. Symptoms include tiredness, decreased appetite, metallic taste, abdominal cramps, muscle weakness (wrist and foot drop), headaches and convulsions. 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 toxic dust.

Medical Conditions Aggravated by Overexposure

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No adverse health effects are expected from processing Geon® compounds when potential exposures are minimized by good industrial hygiene practice and adequate ventilation. Nevertheless, individual additives and/or various combinations of additives may affect the overall toxicological properties. Detailed studies have not been performed on each of the many possible additive combinations. At processing temperatures, additives may

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effects are typically reversible upon removal from exposure and no lasting effects are expected. The potential for irritation will depend upon processing technique, temperature, volume, and most importantly, on the effectiveness of exhaust ventilation provided to the process area.

Inhalation of decomposition or combustion products, especially hydrogen chloride, will cause irritation of the respiratory tract, eyes and skin. Depending on the severity of exposure, physiological response will be coughing, pain and inflammation. Individuals with bronchial asthma and other types of chronic obstructive respiratory diseases may develop bronchospasm if exposure is prolonged.

SPECIAL NOTE: OSHA has established a ceiling limit of 5 ppm for workplace exposure to hydrogen chloride. Hydrogen chloride is detectable by its sharp pungent odor in concentrations as low as 1-5 ppm. Low concentrations (below 50 ppm) are not harmful in short-term exposures but do provide excellent warning properties by causing coughing or irritation. Because the protective response is so strong, humans rarely submit to damaging concentrations -- instead, there is an unmistakable urge to leave the area. Repeated or prolonged exposure to high concentrations can cause eye and respiratory damage.

Emergency and
First Aid
procedure

SECTION VI - REACTIVITY

Stability
Stable

Hazardous Polymerization
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

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Steps to be Taken in Case Material is Released or Spilled

Vacuum powder or sweep cubes/pellets 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 cube or pellet compound are not defined or designated as hazardous by current provisions of the Federal Resource Conservation and

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Geon® vinyl powder compound containing lead, indicated on the bag label, is considered to be a hazardous waste if disposed of in its powdered form.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation

Volatiles from extrusion and molding operations should not be discharged into unventilated work areas. Provide effective exhaust ventilation, including local exhaust when necessary, to draw dust and/or fumes, vapors or smoke away from workers to prevent routine inhalation. 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.

Ventilation guidelines and techniques may be found in the following publications:

- *Division* NIOSH Recommended Industrial Ventilation Guidelines; GPO #017-033-00136-7. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.
- Industrial Ventilation, 19th Edition; Available from the American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Bldg. D-5, Cincinnati, Ohio 45211.

Respiratory Protection

Not normally necessary. Abnormal conditions such as equipment malfunction or use of improper equipment or procedures, or hangup or stagnation of compound during processing may cause decomposition. If general dilution or local exhaust ventilation is not adequate to keep fume or vapor concentrations at low (non-irritating) levels, then employees involved in removing decomposing material should be provided with suitable air supplied respirators, such as NIOSH/MSHA approved positive pressure, self-contained breathing apparatus.

Wear NIOSH approved nuisance dust respirator to protect against airborne dust created during handling of non-lead containing powder compound. Wear NIOSH approved toxic dust respirator to protect against airborne dust containing lead created during handling of lead containing powder compound. Air monitoring may be necessary to determine employee exposure to lead in powder compound. See 29 CFR 1910.1025, OSHA lead standard.

Other Protective Equipment

Wear protective gloves when handling hot material during processing. Safety glasses are recommended for all industrial workplaces.

SECTION IX - SPECIAL PRECAUTIONS

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Normal Melt Processing - Virtually all thermoplastic materials will emit

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variables such as the specific compound formulation, amount processed, processing method and temperature and the effectiveness of exhaust ventilation. Always use Geon® vinyl compound under well ventilated conditions and avoid continued or prolonged breathing of process vapors. For personal hygiene, wash thoroughly after processing compound, especially before eating, smoking or using toilet facilities. Do not store or consume food in processing areas. Do not use processing equipment to heat food.

Cleanup following normal melt processing should be performed under well ventilated conditions. Geon® vinyl compound may be held at process temperatures for a short time without significant thermal degradation. However, it should be recognized that exposure to either elevated temperature or excessive heat history (time) will result in decomposition.* Equipment should not be shut down for extended time periods with compound in it, or decomposition and possible corrosion of unprotected metal may result. If dies and screws are not to be cleaned manually, then compound should be purged from processing equipment prior to shutdown using special vinyl purge compound or a compatible thermoplastic such as general purpose ABS (do not use flame-retarded or halogen-containing grades for this purpose).

*The time and temperature required to initiate degradation will vary depending upon processing technique, degree of compound stabilization and other factors. As a general rule-of-thumb, degradation begins to occur after about one hour at 177°C (350°F), about 10 minutes at 204°C (400°F) and within five minutes at 232°C (450°F).

In case of power loss or other mishap, shut off the machine and dismantle the die assembly as soon as possible before degradation or decomposition begins. If decomposition begins (with gassing and "popping" sounds) before the die can be disassembled, dangerously high pressure may occur in the die system. In this event, shut off the machine, clear the area of personnel and wait until decomposition stops. Thoroughly ventilate the area. Remove and disassemble the die system. These are guidelines only.

SECTION X - TRANSPORTATION

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For domestic transportation purposes, vinyl cube/pellet or powder compounds are not classified as hazardous by the U.S. Department of Transportation under Title 49 of the Code of Federal Regulations, 1983 Edition. 1986

- DOT Proper Shipping Name: Not applicable
- DOT Hazard Class: Not applicable
- DOT Label: Not applicable
- UN/NA Hazard No.: Not applicable
- Reportable Quantity (RQ) Not applicable

I think it has been determined, hasn't that feed stability and plantings, etc

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SECTION XI - HAZARD CODES

For Pellet or Cube Compound

NFPA 704(1)

Health: 2

Flammability: 1

Reactivity: 0

Special: None

HMIS(2)

Health: 0

Flammability: 1

Reactivity: 0

Personal Protection: (See Section VIII.)

For Powder Compound

NFPA 704(1)

Health: 2

Flammability: 1

Reactivity: 0

Special: —

HMIS(2)

Health: 1

Flammability: 1

Reactivity: 0

Personal Protection: (See Section VIII.)

Hazard Code Key: 0 = Insignificant; 1 = Slight; 2 = Moderate; 3 = High;
4 = Extreme.

- (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.

APPENDIX 1 - VINYL CHLORIDE MONOMER (VCM)

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Vinyl chloride and polyvinyl chloride (PVC) are not the same material. Vinyl chloride is a flammable gas that is strictly regulated by DOT, EPA and OSHA. Through a chemical reaction, this gas -- known as a monomer -- is converted to a non-hazardous white granular powder called polyvinyl chloride resin, PVC or simply, vinyl. It is this vinyl resin that is then combined with functional additives to make Geon® vinyl compound. Vinyl resin is not a cancer suspect agent. Moreover, the reaction is not reversible. That is, thermal processing or decomposition will not cause polyvinyl chloride to revert back to vinyl chloride monomer.

Employee exposure to vinyl chloride monomer (CAS Registry Number: 75-01-4), a carcinogen, is regulated by OSHA (29 CFR 1910.1017). The

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using the
same
description
as in G-62
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over any eight-hour period or 5.0 ppm averaged over any period not exceeding 15 minutes. The action level is 0.5 ppm averaged over any eight-hour workday.

The regulation applies to the manufacture, packaging, repackaging, storage, handling or use of vinyl chloride or polyvinyl chloride, but does not apply to the handling or use of fabricated products made of polyvinyl chloride. Purchasers of vinyl compound for processing purposes must comply with the permissible exposure limits set by OSHA. Moreover, the regulation requires a program of initial monitoring in each facility to determine if there is any employee exposure in excess of the action level without the use of respirators. If monitoring does not find VCM above 0.5 ppm, no further action is necessary. Refer to OSHA regulations (including 29 CFR 1910.1017) for complete details.

SPECIAL NOTE: Vinyl Chloride Warning Labels on Compound Containers
Monitoring of vinyl processing and fabricating plants and modeling studies show that the action level (0.5 ppm) cannot be exceeded when residual VCM is at or below 8.5 ppm in Geon® vinyl compound. Shipping containers for these compounds are not labeled by BFGoodrich unless a customer specifies otherwise. Geon® vinyl compound will be labeled if residual monomer exceeds 8.5 ppm. The OSHA regulation requires that the label say "Polyvinyl chloride contains vinyl chloride. Vinyl chloride is a cancer suspect agent."

The vinyl in Geon® vinyl is not a cancer suspect agent. It is the trace amount of unreacted vinyl chloride monomer that must be controlled, not the vinyl resin itself.

Although some containers may be labeled, this does not necessarily mean that employee exposure to VCM will exceed permissible exposure limits. Using "worst case" conditions of thermal processing, our studies show that more than 30 ppm of unreacted monomer in vinyl resin is needed to cause 0.5 ppm to be present in the atmosphere of a hot, poorly ventilated workplace. For further information, please read BFGoodrich Technical Service Bulletin No. 12, "Vinyl Studies." Good ventilation in those areas where VCM might concentrate -- such as where containers are stored and first opened, where materials are mixed and where compound is melted -- will further ensure a work environment virtually free of VCM.

APPENDIX 2 - POLYVINYL CHLORIDE AND HAZARD COMMUNICATION

The OSHA hazard communication standard requires that manufacturers of products state in the MSDS whether or not the material is listed as a carcinogen. The lists to be consulted include OSHA Health Standards, The International Agency for Research on Cancer (IARC) and the National Institute for Occupational Safety and Health's Registry of Toxic Effects of Chemical Substances (RTECS).

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NIOSH in the 1983 RTECS listed Polyvinyl Chloride (PVC) as a carcinogen. NIOSH misinterpreted the IARC monograph 19.377.76 (Summary of Data Reported and Evaluation). The monograph states that "studies (about)...the possibility of cancer on workers involved in the fabrication of plastics, including polyvinyl chloride, are insufficient to evaluate carcinogenicity."

IARC monograph 19.419.79 correctly identified vinyl chloride monomer as a carcinogen. NIOSH's inexplicable expansion to include all the polymers listed (including Tygon, which is used in medical tubing) was in error.

The Vinyl Institute, a trade organization representing the PVC industries in June, 1987 managed to get the RTECS review board to correct the misinterpretation of the IARC monographs. Polyvinyl chloride is now listed as presenting inadequate evidence of being a human or animal carcinogen.

APPENDIX 3 - 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.

- 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. Geon® vinyl compound containing organic tins are labelled. Lead salts, like dibasic lead phosphite, are mainly organic lead compounds and include sulfates, silicates, phosphates, stearates, phthalates and maleates. Powdered lead compounds are labelled. Lead compounds will not be emitted into the workplace during normal thermal processing operations. Mixed metal salts include calcium-zinc and barium-cadmium systems. Special-purpose stabilizers include flame retardants such as antimony derivatives and ultraviolet light absorbers. Stabilizer will typically be present in amounts up to 5% by weight.
- Processing aids - The most common processing aids used with vinyl compound are acrylics or styrene-acrylonitrile copolymers present at levels up to 5.0% by weight.
- 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 up to

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- Fillers - Most common are metal carbonates, mainly calcium carbonate, which is unusally in the form of ground limestone and coated with stearic acid. Other fillers may be silicates, gypsum, clay, alum and barytes.
- Plasticizer - 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. Dioctyl phthlate is FDA acceptable for food contact applications. When used in flexible vinyl compound, plasticizer concentration will generally range between 20-50%, by weight.
- 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%.
- Pigment - Pigments may be present up to 5% to achieve opacity and color.

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