
Occupational Fact Sheet for

Painters

**Including sample
Material Safety Data Sheets**

**Prepared by
The Bureau of Toxic Substance Assessment
New York State Department of Health**

PAINTERS

This fact sheet is an introduction to the potential hazards of paints and coatings. Because of the variable nature of paint composition, some knowledge of the specific product you are using is necessary to fully understand the hazards of that product. The container label may list much of this information. A Material Safety Data Sheet for each product is available from the manufacturer and may be on hand at your supplier. Chemical Fact Sheets prepared by the New York State Department of Health on paint-related materials are listed at the end of this sheet. By using these information sources, you can learn about the measures you can take to prevent adverse health effects from paints.

Painters use many types of products. In addition to several kinds of paint (oil, latex, urethane, etc.), they may use varnishes, lacquers, stains, strippers and wood preservatives. Each has its own composition and toxicity. Paints and coatings, whether oil-based or water-based, consist of three basic components: thinners, binders, and pigments. The thinner or solvent may be water or some liquid such as vegetable oil or mineral spirits that allows the mixture to be spread. Binders form the film of dried material and are usually natural resins, drying oils or synthetic polymers. Binder and solvent combined are called the vehicle of the coating. Pigments, either metallic salts or synthetic dyes, provide color and improve the film quality. Additives, such as fungicides and stabilizers, may be present depending upon the properties required of the coating. The table on page two is a list of typical materials used in paint and coating formulations.

The most likely kinds of exposure from paint will be by inhalation of solvent fumes and through skin contact. Although many of the ingredients of paint are considered hazardous in pure form, when incorporated into a paint formulation they pose little risk. For example, pure chromium pigments are of concern since they can cause severe skin reactions and when ingested, cause damage to liver and kidneys. Inhalation of chromium fumes and dust may also cause lung damage and cancer. For the paint formulator who handles large quantities of pure pigment, this is a real concern. For the paint applicator, the pigment is locked into the final coating and poses little, if any danger except in unusual circumstances, such as sanding of painted surfaces, heating painted surfaces for welding or paint removal, or the ingestion of peeling paint chips by small children. As with any chemical, you must determine the primary hazards for the job you are doing.

THINNERS AND SOLVENTS:

Paints and lacquers contain liquids which suspend pigments and dissolve oils and additives. The liquid may be one chemical or, more commonly, a combination of chemicals. The same chemicals may be used to thin the paint, as temperature or method of application requires. These liquids evaporate after application, leaving behind the pigments and binders that form the final surface coating.

Most solvents are both fire and health hazards. Because they are intended to evaporate, they can form flammable mixtures in the air and may enter the body when inhaled. Some solvents may even be absorbed through the skin. Generally, skin contact can cause drying, irritation, and an increased risk of infection. If absorbed through the skin or inhaled, solvents can cause systemic effects, such as damage to liver and kidneys. Nerve damage can also occur, with symptoms of numbness in arms and legs, dizziness and nausea.

Liquid paint strippers contain many of the same solvents used in paint, and other chemicals that react with paint. The components of strippers evaporate very rapidly and may be more hazardous than paint solvents. Good ventilation, protective equipment, and proper work practices are essential in avoiding overexposure to paint solvents and strippers.

* Prepared by the Bureau of Toxic Substance Assessment, New York State Department of Health.

Metallic soaps are commonly found in coating formulations. These compounds are made up of metals such as:

copper, iron, lead, mercury, tin, and zinc;

and another chemical usually listed as:

lineolate, naphthenate, octoate, oleate, palmitate, stearate, or tallate, and others.

The amount of metallic soap in a formulation is small, minimizing the hazard of exposure. However, some metals (lead, mercury) can accumulate once they enter the body and this may result in poisoning. A special warning statement should appear on the label if the coating contains mercury at or above 0.02% or lead. For information concerning exposure to metals, see Pigment section above.

Organo-metallic compounds such as phenylmercury oleate and dibutyltin dioctoate are used in formulations as preservatives and fungicides. Organic tin can cause irritation of the eyes, throat and skin. Severe exposures may cause liver and nervous system damage if swallowed or inhaled.

Organic mercury may also cause irritation of the eyes and respiratory system and allergic skin rashes may occur. Higher exposures or continued exposure over a long period of time may cause mercury poisoning. Symptoms can include numbness and tingling of the lips, hands and feet; tunnel vision; hearing difficulties and emotional disturbances. In severe cases these effects may become permanent. Onset of symptoms may be delayed for months.

Chlorinated phenols, such as pentachlorophenol, are another class of compounds used as preservatives and fungicides. They may be present in concentrations up to 0.5%. Skin contact is the most common route of exposure. Symptoms include pain and inflammation at the point of contact. Prolonged exposure can cause chemical acne, profuse sweating and elevated temperature. Some chlorinated phenols are readily absorbed through the skin and this has resulted in at least one fatality.

PROTECTIVE MEASURES:

The two most likely kinds of exposure from paint products are through inhalation of vapor and skin contact. Good ventilation is a necessity. This may mean painting only when weather permits opening windows or supplying forced ventilation where needed. In spray painting operations, a protective mask may also be required if droplets are carried into the breathing zone. Skin contact can be avoided by wearing coveralls, a hat and, if necessary, gloves. If you do get paint on large areas of skin or clothing, remove the contaminated clothing and wash affected area promptly.

Although eye contact and ingestion are accidental types of exposures, you should be prepared for this possibility. Because you cannot remove paint from the eye with normal paint cleaners, having emergency water on hand is advised. Avoid storing, preparing, or eating food in the work area, and be sure to clean your hands thoroughly before touching food. And, because paint solvents will be in the air, you should not smoke while painting.

Chemical Fact Sheets are available from the New York State Department of Health on the following paint related chemicals:

Acetone	Isopropyl alcohol(Isopropanol)	Nickel
Benzene	Kerosene	Pentachlorophenol(PCP)
2-Butanone(MEK)	Lead	Petroleum distillates
Chromium	Manganese	Petroleum ether
Copper	Mercury	Titanium dioxide
Ethyl alcohol(Ethanol)	Methyl alcohol(Methanol)	Toluene
Ethylene glycol	Methylene chloride	Xylenes
Gasoline	Mineral Spirits	Zinc
Iron	Naphthalene	

For additional information:

Contact the Safety Officer or Industrial Hygienist at your worksite or the Bureau of Toxic Substance Assessment, Tower Building, Empire State Plaza, Albany, New York 12237.

BINDERS:

The substances used as binders in the coatings industry are synthetic and natural resins and drying oils. Synthetic resins are most commonly used today; they include alkyd, polyester, phenolic, amino, epoxy, polyurethane, acrylic, hydrocarbon and silicone resins. Synthetic resins consist of many small molecules linked together in a long chain, with small amounts of free, or unlinked, molecules present. The free components of many different resins can cause eye, nose and throat irritation. Since these free molecules make up a small part of the entire coating formulation, the inhalation hazard is minimized. However, a few individuals may experience an allergic asthmatic reaction after initial contact with formaldehyde, a component of certain phenolic and amino resins, or the isocyanate vapors of polyurethane resins. This reaction can be triggered at extremely low levels. Skin contact with epoxy resins can cause itching, redness, swelling and blistering of the skin. Exposure to formaldehyde or isocyanates can result in allergic skin rashes.

Natural resins include Dammar, East India resin, Congo, rosin, Shellac and Gilsonite. Contact with certain natural resins can cause skin irritation. When heated, rosin and Gilsonite fumes can cause irritation of the nose, throat and lungs.

The oils used for drying purposes are primarily linseed, tung, oiticica, fish and dehydrated castor oils. These oils do not contribute significantly to the adverse health effects of paints.

PIGMENTS:

Paint pigments are particles dispersed in liquid or solid binders that impart color and hiding power, and improve hardness and durability. Paint formulations may contain any number of different pigment compounds. While inhalation of pigment dusts or ingestion of particles may cause ill effects, when combined into paint formulations these routes of exposure are infrequent.

Metallic salts are commonly used as pigments. Lead pigments, while often replaced by less toxic substances, are still used in industrial applications. The hazards of lead in paints are primarily due to ingestion of paint chips by children. Exposure to lead can also be from sanding or burning, used in paint removal. Lead dust can be carried home on clothing and can affect other family members. Lead can accumulate in the body over a period of time. Long term exposure to low levels can cause severe effects, including nervous system, digestive and blood disorders. Lead exposure of either parent before pregnancy can increase the chances of miscarriage or birth defects. If lead pigments are used, a warning statement is required on the label. "Fume-Proof" or "Fume-Resistant" denotes no lead content.

Other metals used include chromium, cadmium, titanium, zinc, iron and copper. Contact with these metals from paint mixtures is rare, but can occur in certain circumstances, as described for lead. If heated, some metals can cause metal fume fever, characterized by chills, fever, aching muscles, headache, nausea, vomiting, diarrhea and stomach pain. Inhalation of cadmium or chromium dusts can cause lung irritation or injury. Contact with certain chromium or cadmium compounds is associated with an increased risk of cancer of the lung, prostate or kidney.

Extenders or fillers are substances which have little hiding power by themselves but are used to conserve more expensive hiding pigments, to control flow properties and to improve brushability and mechanical strength. Some of the commonly used extenders are talc, clay, calcium silicate, calcium carbonate, magnesium carbonate, barium sulfate, and silicon oxide. Dust from these substances can cause irritant effects. However, when already combined in paint formulations, they do not contribute to any adverse health effects.

ADDITIVES:

Several different properties can be given to a coating by including additives in the formulation. Additives can control flow, penetration, pigment suspension and bubble or wrinkle formation. They can also provide resistance to insects or mildew, to extremes in temperature and moisture, and can preserve the coating and extend its service-life.

PAINT PRODUCTS*

<u>Paint</u>	<u>Vehicle</u>		<u>Pigments</u>	<u>Additives</u>
	<u>Thinner</u>	<u>Binder</u>		
Latex house or wall	ethylene glycol water	polyvinyl acetate, acrylic or styrene butadiene elastomers, emulsifying agents, alkyd resin, vegetable oils or resins	titanium dioxide zinc oxide inert fillers	mercury compounds as fungicides (exterior paints)
Oil-flat wall, gloss & floor enamels house & trim semi gloss	mineral spirits linseed oil	alkyd resin or oil varnish	titanium dioxide lithopone zinc oxide white lead basic lead chromate inert fillers	
metallic paint	vegetable oil, varnish, linseed oil, aromatic thinners, mineral spirits	petroleum resin coumarone indene resin	metal or metal alloy	
asphalt, screen enamel, stove enamel	oil or varnish mineral spirits	asphalt or Gilsonite	carbon black	
stains wood fillers	vegetable oil, varnish mineral spirits	Gilsonite or asphalt alkyd resin	aniline dyes fillers	pentachlorophenol
varnishes	vegetable oil, varnish, mineral spirits	alkyd resin polyurethane resin phenolic resin	fillers	
anticorrosion	pine oil petroleum ether ethyl alcohol kerosene methylene chloride	rosin coal tar paraffin plastic thickener	zinc chromate lead chromate red lead oxide basic lead carbonate zinc oxide lead monoxide	ammonium hydroxide arsenic cuprous oxide mercuric oxides metallic soap rust retardant bis(tributyltin) oxide
lacquers	cottonseed oil ethyl alcohol ethyl acetate butyl alcohol butyl acetate toluene aliphatic hydrocarbons	nitrocellulose ester gum (esters of resin acids) vinyl resins acrylic resins	lead oxide	nitric acid magnesium oxide
automotive under coatings	fish oil vegetable oil aromatic hydrocarbons aliphatic hydrocarbons	alkyd resins phenolic resin	iron oxide silicates lead salts zinc salts titanium dioxide	

This table lists typical compositions. Check the label or MSDS for the product you use.

140-SE Series

86

MATERIAL SAFETY DATA SHEET
FOR COATINGS, RESINS AND RELATED MATERIALS
(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, Ohio 44115

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
5-May-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME

Spray Enamel

* - Trade Mark

PRODUCT NUMBERS AND COLORS

140-0019	Gloss Black	140-0076	Gloss Green
140-0027	Flat Black	140-0084	Gloss Yellow
140-0035	Appliance White	140-0092	Gloss Brown
[140-0043]	Bright Aluminum	[140-0464	Crystal Clear Acrylic)
140-0050	Gloss Red	[140-0472	Super Smooth Metal Primer)
140-0068	Gloss Blue	140-0480	Flat White

PRODUCT CLASS

Aerosol Alkyd Enamel

Section II -- HAZARDOUS INGREDIENTS

CAS No.	INGREDIENT	% by weight**	ACRID-TX	OSHA-PEL	LIMITS	V.P.
74-98-6	Propane (Propellant)	10	1000	1000	PPH	760.0
75-28-5	2-methylpropane (Propellant)	15	1000		PPH	760.0
108-86-3	Toluene.	0-20	100	200	PPH	23.0
1330-20-7	Xylene.	10-25	100	100	PPH	5.9
67-63-0	2-Propanol	0-5	400	400	PPH	33.0
71-36-3	1-Butanol	0-5	50	100	PPH	5.5
67-64-1	Acetone.	5-45	750	1000	PPH	180.0
78-93-3	Methyl Ethyl Ketone.	0-10	200	200	PPH	70.0
110-19-0	Isobutyl Acetate.	0-5	150	150	PPH	12.5
763-69-9	Ethyl 3-ethoxypropionate.	0-5			Not Estab.	0.9

** For specific percent hazardous ingredients for products in [], see Section X

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Faster than Ether

BOILING RANGE (F) <G - 325

VAPOR DENSITY -- Heavier than Air

% VOLATILE VOLUME >75

WT/GAL N.A.

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION RED LABEL -- Extremely Flammable, Flash below 21 F

FLASH POINT 60 F TCC

LEL 1.0

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE

→ **ACUTE:** In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait. Irritant to skin and upper respiratory system.

→ **CHRONIC:** Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES

IF INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

IF ON SKIN: Wash affected area thoroughly with soap and water. Remove contaminated clothing and launder before re-use.

IF IN EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

IF SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS

By type: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 151. Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

→ **VENTILATION**

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- IA

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated. Do not smoke.

Extinguish all flames, pilot lights, and heaters. Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120°F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section X -- PERCENT HAZARDOUS INGREDIENTS

-0043 -0464 -0472

Propane (Propellant)	15	15	10
2-Methylpropane (Propellant)	15	15	15
Toluene.	60	30	15
2-Propanol	--	--	<5
Acetone.	--	15	40
Isobutyl Acetate.	--	--	<5
Ethyl 3-ethoxypropionate.	--	--	<5



MATERIAL SAFETY DATA SHEET

September 1, 1985

ENAMEL PRIMERS, CHROMATE PRIMER, VARIPRIME®, CORLAR®

Section I

Manufacturer

E. I. du Pont de Nemours & Co. (Inc.)
Finishes & Fabricated Products Dept.
Wilmington, Delaware 19898

Telephone: Product information (800) 441-7515
Medical emergency (800) 441-3637
Transportation emergency (800) 424-9300
(CHEMTREC)

Product: 215S, 329S, 615/616S, 824/825/826S, 1695S, 1696S,
1697S, LF 1697S, 3010S, 3011S, 3012S, 3055S,
1858S, 2085S

D.O.T. Hazard Class: Flammable liquid
Paint UN 1263

Section II — Hazardous Ingredients (See Section X for specific product codes and additional ingredients)

Primary Ingredients	CAS No.	Vapor Pressure (20°C mm Hg.)	Exposure Limits*
1. Butyl acetate	123-86-4	8	150ppm-A,0
2. n-Butyl alcohol	71-36-3	4	25ppm-D, 100ppm-0
3. Acetone	67-64-1	185	1000ppm-0
4. Methyl ethyl ketone	78-03-3	95	200ppm-A,0
5. Methyl isobutyl carbinol	108-11-2	4	25ppm-A,0,0
6. Toluene	108-88-3	29	100ppm-A; 200ppm-0
7. Isopropyl alcohol	67-63-0	31	400ppm-A,0
8. 2-Methoxy-1-propanol	107-98-2	10.9	100ppm-A,0,0
9. 1-Methoxy-2-propanol acetate	108-65-6	2.4	100ppm-A,0
10. Mineral spirits	64742-88-7	~5	100ppm-A,0
11. Aromatic hydrocarbon	64742-95-6	~5	50ppm-A,0
12. VM&P naphtha	64742-89-8	~45	100ppm-A,0
13. Xylene	1330-20-7	8	100ppm-A,0
14. Acrylic resin	None	None	None
15. Alkyd resin	None	None	None
16. Epoxy resin	None	None	None

*A - ACGIH TLV O - OSHA D - Du Pont internal limit

Section III — Physical Data

Evaporation rate: Slower than ether
Solubility in water: Slight
Approximate boiling range: 129°F-401°F
Vapor density: Heavier than air
Percent volatile by volume: 45-70%
Density: 6.8-12.7 #/gallon

Section IV: Fire & Explosion Data

Flash point (Method): 20-73F (Closed cup)
Approx. flammable limits: 1.1-14%
Extinguishing media: Foam, carbon dioxide, dry chemical

Special fire fighting procedures: Full protective equipment, including self-contained breathing apparatus, is recommended. Water from fog nozzles may be used to cool closed containers to prevent pressure build up.
Unusual fire & explosion hazards: When heated above the flash point, emits flammable vapors which, when mixed with air, can burn or be explosive. Fine mists or sprays may be flammable at temperatures below the flash point.

Section V — Health Hazard Data

Ingestion: Gastro-intestinal distress.

In the unlikely event of ingestion, call a physician immediately and have names of ingredients available.

Inhalation: May cause nose and throat irritation. May cause nervous system depression characterized by the following progressive steps: Headache, dizziness, nausea, staggering gait, confusion, unconsciousness. 1-Methoxy-2-propanol acetate and n-butyl alcohol may cause moderate eye burning and can be absorbed through the skin in harmful amounts. Laboratory studies with rats have shown that petroleum distillates cause kidney damage and kidney or liver tumors. These effects were not seen in similar studies with guinea pigs, dogs, or monkeys. Several studies evaluating petroleum workers have not shown significant increases of kidney damage nor kidney or liver tumors. Extremely high concentrations of butyl acetate have caused blood changes and weakness in laboratory animals. Very high concentrations of methyl ethyl ketone have caused embryotoxic effects in laboratory animals. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. If affected by inhalation of vapor or spray mist, remove to fresh air. If breathing difficulty persists, or occurs later, consult a physician.

Skin or eye contact: May cause irritation or burning of the eyes. Repeated or prolonged liquid contact may cause skin irritation with discomfort and dermatitis. In case of eye contact, immediately flush with plenty of water for at least 15 minutes; call a physician. In case of skin contact wash with soap and water. If irritation occurs, contact a physician.

Section VI — Reactivity Data

Stability: Stable
Incompatibility (materials to avoid): None reasonably foreseeable
Hazardous decomposition products: CO, CO2, smoke, oxides of heavy metals reported in Section X
Hazardous polymerization: Will not occur

Section VII — Spill or Leak Procedures

Steps to be taken in case material is released or spilled: Ventilate area. Remove sources of ignition. Prevent skin contact and breathing of vapor. Confine and remove with inert absorbant.
Waste disposal method: Do not allow material to contaminate ground water systems. Incinerate absorbed material in accordance with federal, state and local requirements. Do not incinerate in closed containers.

Section VIII — Special Protection Information

Respiratory: Do not breathe vapors or mists.
 Wear a properly fitted NIOSH/MSHA TC-23C approved paint spray respirator during application and until all vapor and spray mist are exhausted.
 Ventilation: Provide sufficient ventilation in volume and pattern to keep contaminants below applicable OSHA requirements.
 Protective clothing: Neoprene gloves and coveralls are recommended.
 Eye protection: Desirable in all industrial situations. Include splash guards or side shields.

Section IX — Special Precautions

Precautions to be taken in handling and storing: Observe label precautions. Keep away from heat, sparks and flame. Close container after each use. Ground containers when pouring. Wash thoroughly after handling and before eating or smoking. Do not store above 120°F.
 Other precautions: Do not sand, flame cut, braze or weld dry coating without a NIOSH/MSHA approved respirator or appropriate ventilation.

Section X — Notes

Product Code	Additional Ingredients
215S	3, 4, 14
329S	6, 13
615S/616S	1, 2, 3, 6, 7, 12, 14
824S/826S	1, 2, 6, 7, 8, 10, 11, 13, 16
825S/826S	2, 4, 5, 6, 7, 8, 10, 11, 16
1695S, 1696S, 1697S, LF1697S	
3010S, 3011S, 3012S, 3055S, 1858S, 2085S	6, 7, 10, 11, 15

Additional Ingredients	CAS No.	Vapor Pressure (20°C mm Hg.)	Exposure Limits*
(1) 615S also contains Ethyl alcohol	64-17-5	41	1000ppm-0
Methyl isobutyl ketone	108-10-1	16	100ppm-0; 50ppm-0A
(2) 215S, 615S, 825S and 2085S also contain Zinc Chromate	3530-65-9	None	.05mg/m ₃ -A as Cr

Health studies have shown that zinc chromate pigment manufacturing may be associated with an increased risk of lung cancer.

2-Ethoxy butyl acetate (825S only)	112-07-02	0.3	25ppm-A,0
------------------------------------	-----------	-----	-----------

2-Ethoxy butyl acetate can be absorbed through the skin in harmful amounts. In studies in laboratory animals has produced damage to red blood cells and kidneys.

(3) 824S also contains Ethyl acetate	141-78-6	100	400ppm-A
--------------------------------------	----------	-----	----------

Repeated exposures of laboratory animals to extremely high concentrations of ethyl acetate resulted in secondary anemia with an increase in white blood cells; fatty degeneration, cloudy swelling and an excess of blood in various organs.

Titanium dioxide	13463-67-7	None	10mg/m ³ -A; 15mg/m ³ -0
------------------	------------	------	---

In a lifetime inhalation test, lung cancers were found in some rats exposed to 250 mg/m³ respirable titanium dust. Analysis of the titanium dioxide concentrations in the rat's lungs showed that the lung clearance mechanism was overwhelmed and that the results at the massive 250 mg/m³ level are not relevant to the workplace.

(4) 1695S, 1696S, 1697S, LF1697S, 3010S, 3011S, 3012S, 3055S, 1858S, 2085S also contain Lead drier	123-96-0	None	.05 mg/m ³ as Pb
--	----------	------	-----------------------------

Overexposure to lead may cause adverse effects to the blood forming, nervous, urinary, reproductive systems including embryotoxic effects. Symptoms may include loss of appetite, anemia, disturbance of sleep and fatigue.

*A = ACGIH TLV O = OSHA D = Du Pont internal limit

Notice: The data in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process.

Product Manager
 Refinish Sales