



Material Safety Data Sheet

Conforms to EU Directive 91/155/EEC and ISO 11014-1

Product name : 44000 Series Fast Dry Gloss Vinyl Ink

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Version : 1.00

Date of issue : 24/10/2009.

Date of previous issue : No previous validation.

1. Identification of the substance/preparation and of the company

Product name : 44000 Series Fast Dry Gloss Vinyl Ink
Product code : 412 / 416 / 418
Use of the substance/preparation : Solvent based screen ink
Supplier : GL Specialized Inks (Pty) Ltd
 8 Hawthorne Place, Mahogany Ridge, Pinetown, Durban
Emergency telephone number : Office Hours:
 031 - 700 6455
 After hours:
 082 451 6588 (Jay)
 082 780 8837 (Julie)
 082 452 2143 (Gordon)

2. Composition/information on ingredients

Chemical characterization : Mixture.

Ingredient name	CAS number	%	EC number	Classification
resin mixtures		23 - 29		Not classified.
pigment mixture		0 - 22		Not classified.
titanium dioxide	13463-67-7	0 - 32	236-675-5	Not classified.
2-Butoxyethyl acetate	112-07-2	9 - 23	203-933-3	Xn; R20/21
2-Ethoxyethyl acetate	111-15-9	8 - 15	203-839-2	Repr. Cat. 2; R60, R61 Xn; R20/21/22
lead sulfochromate yellow	1344-37-2	0 - 21	215-693-7	Carc. Cat. 3; R40 Repr. Cat. 1; R61 Repr. Cat. 3; R62 R33 N; R50/53
lead chromate molybdate sulfate red	12656-85-8	0 - 17	235-759-9	Carc. Cat. 3; R40 Repr. Cat. 1; R61 Repr. Cat. 3; R62 R33 N; R50/53
cyclohexanone	108-94-1	6 - 11	203-631-1	R10 Xn; R20
gamma butyrolactone	96-48-0	5 - 10	202-509-5	Xn; R22
copper	7440-50-8	0 - 15	231-159-6	N; R50/53
aluminium	7429-90-5	0 - 10	231-072-3	F; R15 R10
carbon black	1333-86-4	0 - 8	215-609-9	Not classified.
N-Methyl-2-pyrrolidone	872-50-4	2 - 4	212-828-1	Xi; R36/38
See section 16 for the full text of the R-phrases declared above				

Occupational exposure limits, if available, are listed in section 8.

This MSDS covers all formulations in the the range. Not all of the components listed will be present in an individual formulation. Formulae specific MSDS available on request.

3. Hazards identification

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

- Classification** : Carc. Cat. 3; R40
Repr. Cat. 1; R61
Repr. Cat. 2; R60
Xn; R20/21
R33
N; R51/53
- Physical/chemical hazards** : No known significant effects or critical hazards.
- Human health hazards** : Harmful by inhalation and in contact with skin.
Danger of cumulative effects.
Limited evidence of a carcinogenic effect.
May impair fertility.
May cause harm to the unborn child.
- Environmental hazards** : Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
- See section 11 for more detailed information on health effects and symptoms.**

4. First aid measures

- Inhalation** : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Get medical attention. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Extinguishing media

- Suitable** : In case of fire, use water spray (fog), foam or dry chemical.
- Not suitable** : None known.
- Special exposure hazards** : No specific hazard.
This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials: carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂ etc.). Some metallic oxides.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. arsf:faaa:7pt Place spilled material in an appropriate container for disposal.

7. Handling and storage

- Handling** : Avoid prolonged contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Avoid contact of spilled material and runoff with soil and surface waterways. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.
- Packaging materials**
- Recommended** : Use original container.

8. Exposure controls/personal protection

Exposure limit values :

Ingredient name	Occupational exposure limits
titanium dioxide	<p>ACGIH (United States). TWA: 10 mg/m³ ACGIH TLV (United States, 1/2004). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens. TWA: 10 mg/m³ 8 hour(s). Form: All forms</p>
2-Butoxyethyl acetate	<p>EU OEL (Europe, 4/2004). Skin Notes: Indicative STEL: 333 mg/m³ 15 minute(s). Form: All forms STEL: 50 ppm 15 minute(s). Form: All forms TWA: 133 mg/m³ 8 hour(s). Form: All forms TWA: 20 ppm 8 hour(s). Form: All forms</p>
2-Ethoxyethyl acetate	<p>ACGIH TLV (United States, 1/2004). Skin Notes: Substances for which there is a Biological Exposure Index or Indices TWA: 27 mg/m³ 8 hour(s). Form: All forms TWA: 5 ppm 8 hour(s). Form: All forms</p>
cyclohexanone	<p>EU OEL (Europe, 4/2004). Skin Notes: Indicative STEL: 81.6 mg/m³ 15 minute(s). Form: All forms STEL: 20 ppm 15 minute(s). Form: All forms TWA: 40.8 mg/m³ 8 hour(s). Form: All forms TWA: 10 ppm 8 hour(s). Form: All forms</p>
copper	<p>ACGIH TLV (United States, 1/2004). Notes: Adopted Values enclosed are those for which changes are proposed. Consult the Notice of Intended Changes for current proposal. See Notice of Intended changes. TWA: 1 mg/m³ 8 hour(s). Form: All forms ACGIH TLV (United States, 1/2004). Notes: Adopted Values enclosed are those for which changes are proposed. Consult the Notice of Intended Changes for current proposal. Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. See Notice of Intended changes. TWA: 0.2 mg/m³ 8 hour(s). Form: Fume</p>
aluminium	<p>ACGIH (United States). Notes: Respirable TWA: 5 mg/m³ ACGIH TLV (United States). Notes: Total TWA: 15 mg/m³ 8 hour(s). ACGIH TLV (United States, 1/2004). TWA: 5 mg/m³ 8 hour(s). Form: All forms TWA: 10 mg/m³ 8 hour(s). Form: Dust TWA: 5 mg/m³ 8 hour(s). Form: Fume</p>
carbon black	<p>ACGIH TLV (United States, 1/2004). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1996 Adoption Refers to Appendix A -- Carcinogens. TWA: 3.5 mg/m³ 8 hour(s). Form: All forms</p>

- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: Neoprene gloves. Nitrile gloves.
- Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. Physical and chemical properties

General information

Appearance

Physical state : Liquid. (Viscous liquid.)
Color : Various
Odor : Characteristic.
Odor threshold : Lowest known value: 0.88 ppm (cyclohexanone)

Important health, safety and environmental information

Boiling point : >150°C (302°F)
Melting point : May start to solidify at the following temperature: -23.99°C (-11.2°F) This is based on data for the following ingredient: n-methyl-2-pyrrolidone.
Flash point : Closed cup: 58°C (136.4°F). (Setaflash.)
Flammability (solid, gas) : Combustible liquid.
Explosive properties : Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Explosion limits : Greatest known range: Lower: 1.2% Upper: 12.7% (2-Ethoxyethyl acetate)
Vapor pressure : Highest known value: 0.7 kPa (5 mm Hg) (at 20°C) (cyclohexanone).
Solubility : Easily soluble in the following materials: methanol, diethyl ether, n-octanol, acetone.
 Insoluble in the following materials: cold water, hot water.
Octanol/water partition coefficient : The product is much more soluble in octanol.
Vapor density : Highest known value: 5.5 (Air = 1) (2-butoxyethyl acetate).
Evaporation rate (butyl acetate = 1) : Highest known value: 0.3 (cyclohexanone) compared with butyl acetate

Other information

Auto-ignition temperature : Lowest known value: 340°C (644°F) (2-butoxyethyl acetate).

10. Stability and reactivity

Stability : The product is stable.
Conditions to avoid : Avoid all possible sources of ignition (spark or flame).
Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis.
Hazardous decomposition products : Evolves toxic fumes when heated to decomposition.

11. Toxicological information

Potential acute health effects

Inhalation : Harmful by inhalation.
Ingestion : No known significant effects or critical hazards.
Skin contact : Harmful in contact with skin.
Eye contact : Slightly irritating to the eyes.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2-butoxyethyl acetate	LD50 Dermal	Rabbit	1500 mg/kg	-
	LD50 Oral	Rat	2400 mg/kg	-
2-Ethoxyethyl acetate	LD50 Oral	Rat	2700 mg/kg	-
	LD50 Intraperitoneal	Rat	1130 mg/kg	-
	LD50 Oral	Rat	1800 mg/kg	-
	LD50 Oral	Rat	1620 µL/kg	-
	LD50 Subcutaneous	Rat	2170 mg/kg	-
cyclohexanone	LDLo Intravenous	Rat	568 mg/kg	-
	LD50 Intraperitoneal	Rat	1 gm/kg	-
	LD50 Oral	Rat	1540 mg/kg	-
gamma butyrolactone	TDLo Intraperitoneal	Rat	300 mg/kg	-
	LD50 Intraperitoneal	Mouse	0.07 mg/kg	-
	LDLo Subcutaneous	Rabbit	375 mg/kg	-
copper	TDLo Oral	Human	120 µg/kg	-
	TDLo Oral	Human	0.01 mg/kg	-
	LD50 Dermal	Rabbit	>3 g/kg	-
carbon black	LD50 Oral	Rat	>15400 mg/kg	-

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Potential chronic health effects

<u>Ingredient name</u>	<u>Carcinogenic effects</u>	<u>Mutagenic effects</u>	<u>Developmental toxicity</u>	<u>Impairs fertility</u>
2-Ethoxyethyl acetate	-	-	Repr. Cat. 2; R61	Repr. Cat. 2; R60
lead sulfochromate yellow	Carc. Cat. 3; R40	-	Repr. Cat. 1; R61	Repr. Cat. 3; R62
lead chromate molybdate sulfate red	Carc. Cat. 3; R40	-	Repr. Cat. 1; R61	Repr. Cat. 3; R62

Carcinogenicity : Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : Contains material which can cause birth defects.

Over-exposure signs/symptoms

Inhalation : Inhalation of vapors may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation.

Ingestion : Ingestion may cause nausea, weakness and central nervous system effects.

Skin : Repeated skin exposure can produce local skin destruction or dermatitis.

Target organs : Contains material which causes damage to the following organs: blood, kidneys, lungs, the reproductive system, liver, mucous membranes, lymphatic system, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

12. Ecological information**Ecotoxicity data**

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
titanium dioxide	Daphnia magna (EC50)	48 hour(s)	>1000 mg/l
2-Ethoxyethyl acetate	Lepomis macrochirus (LC50)	96 hour(s)	41 mg/l
	Pimephales promelas (LC50)	96 hour(s)	42.1 mg/l
	Pimephales promelas (LC50)	96 hour(s)	42.2 mg/l
	Pimephales promelas (LC50)	96 hour(s)	42.8 mg/l
	Lepomis macrochirus (LC50)	96 hour(s)	45 mg/l
	Lepomis macrochirus (LC50)	96 hour(s)	52 mg/l
cyclohexanone	Pimephales promelas (LC50)	96 hour(s)	527 mg/l
	Pimephales promelas (LC50)	96 hour(s)	630 mg/l
	Pimephales promelas (LC50)	96 hour(s)	732 mg/l
copper	Daphnia magna (EC50)	48 hour(s)	0.0318 mg/l
	Daphnia magna (EC50)	48 hour(s)	0.036 mg/l
	Daphnia magna (EC50)	48 hour(s)	0.055 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.0094 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.0103 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.0278 mg/l
aluminium	Oncorhynchus mykiss (LC50)	96 hour(s)	0.12 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.16 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.31 mg/l

Other ecological informationPersistence/degradability

<u>Ingredient name</u>	<u>BOD₅</u>	<u>COD</u>	<u>ThOD</u>
2-Ethoxyethyl acetate	>1 gO ₂ /g [10 - 20 d]	-	-

<u>Ingredient name</u>	<u>Aquatic half-life</u>	<u>Photolysis</u>	<u>Biodegradability</u>
2-Butoxyethyl acetate	9 to 70 day(s)	<1 day(s).	Inherent
2-Ethoxyethyl acetate	24 to 180 day(s)	-	Readily
cyclohexanone	4.1 to 33 day(s)	1.3 day(s).	Inherent
gamma butyrolactone	-	7 day(s).	-
copper	> 100 day(s)	-	Not readily
N-Methyl-2-pyrrolidone	-	<1 day(s).	Readily

Bioaccumulative potential




<u>Ingredient name</u>	<u>LogP_{ow}</u>	<u>BCF</u>	<u>Potential</u>
2-Butoxyethyl acetate	-	3	low
2-Ethoxyethyl acetate	-	1	low
cyclohexanone	0.81	2.4	low
gamma butyrolactone	-0.64	3.2	low
copper	-	1000	high
N-Methyl-2-pyrrolidone	-0.54	0.23	low

Other adverse effects : Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

13. Disposal considerations


Methods of disposal : Hazardous chemical waste.
 Waste must be disposed to a landfill permitted in terms of the Department of Water Affairs and Forestry's minimum requirements for waste disposal to landfill, and the minimum requirements for the handling, classification and disposal of hazardous waste.

14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
ADR / SANS 10228 Class	UN1210	PRINTING INK	3	III		Hazard identification number 30 Limited quantity LQ7 CEFIC Tremcard 30GF1-III of 30GF1-sp
IMDG Class	UN1210	PRINTING INK	3	III		Emergency schedules (EmS) F-E, S-D
IATA Class	UN1210	PRINTING INK	3	III		Passenger and Cargo Aircraft Quantity limitation: 60 L Packaging instructions: 309 Cargo Aircraft Only Quantity limitation: 220 L Packaging instructions: 310 Limited Quantities - Passenger Aircraft Quantity limitation: 10 L Packaging instructions: Y309

15. Regulatory information

SANS 10265 / EU Regulations

Hazard symbol or symbols : 

Toxic, Dangerous for the environment.

Risk phrases : R40- Limited evidence of a carcinogenic effect.
 R61- May cause harm to the unborn child.
 R60- May impair fertility.
 R20/21- Harmful by inhalation and in contact with skin.
 R33- Danger of cumulative effects.
 R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S53- Avoid exposure - obtain special instructions before use.
 S36/37- Wear suitable protective clothing and gloves.
 S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

Contains : 2-Ethoxyethyl acetate 203-839-2
 lead sulfochromate yellow 215-693-7
 lead chromate molybdate sulfate red 235-759-9

Product use : Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.
 - Industrial applications.

16. Other information

Full text of R-phrases referred to in sections 2 and 3 - Europe : R15- Contact with water liberates extremely flammable gases.
R10- Flammable.
R40- Limited evidence of a carcinogenic effect.
R61- May cause harm to the unborn child.
R60- May impair fertility.
R62- Possible risk of impaired fertility.
R20- Harmful by inhalation.
R20/21- Harmful by inhalation and in contact with skin.
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R22- Harmful if swallowed.
R36/38- Irritating to eyes and skin.
R33- Danger of cumulative effects.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Prepared by : GL Inks EHS

Notice to reader

This MSDS summarises at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product and, in particular, how to safely handle, use, and transport the product in the workplace. Since GL Specialized inks (Pty) Ltd cannot anticipate or control the conditions under which the product may be handled, used, stored or transported, each user must, prior to usage, review the MSDS in the context of how the user intends to handle, use, store or transport the product in the workplace and beyond; and communicate such information to all relevant parties. If clarification, or further information is required to ensure that an appropriate assessment can be made, the user should contact the company.

We shall not assume any liability of the accuracy or completeness of the information contained herein, or any advice given, unless there has been gross negligence on our part. In such an event, or liability shall be limited only to direct damages suffered. Our responsibility for the product as sold is subject to our standard terms and conditions. All risk with possession and application of the product passes on delivery.