

1. Identification

Product identifier Durabrite Ink (all Colors), TSO-Econo, TSO-1, TSO-2, TSO-3, TSO-4, TSO-6, TSO-8
Other means of identification None.
Recommended use Printing ink.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name Diagraph Marking & Coding
Address 1 Research Park Dr
 St. Charles, MO 63304-5685 USA
Telephone 800-526-2531 / 636-300-2000
E-mail service@diagraph.com
Contact person Customer Service
Emergency phone number Infotrac 800-535-5053 US only
 +1-352-323-3500 International

2. Hazard(s) identification

Physical hazards Flammable liquids Category 2
Health hazards Serious eye damage/eye irritation Category 2A
 Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
 Specific target organ toxicity, single exposure Category 3 narcotic effects
OSHA defined hazards Not classified.

Label elements



Signal word Danger
Hazard statement Highly flammable liquid and vapor. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Avoid breathing mist or vapor. Wear protective gloves/eye protection/face protection.
Response If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. In case of fire: Use appropriate media to extinguish.
Storage Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Ethanol	64-17-5	25 - 81

Ethyl acetate	141-78-6	0 - 25
2-Propanol	67-63-0	5 - 15
1-Methoxy-2-propanol	107-98-2	0 - 10
Titanium dioxide	13463-67-7	0 - 10
1-Propanol	71-23-8	0 - 2.9
29H,31H-Phthalocyaninato(2-)-N29,N30,N31,N32 copper	147-14-8	0 - 2
C.I. Pigment Yellow 83	5567-15-7	0 - 2
Pigment red	3905-19-9	0 - 2

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Causes serious eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors may cause drowsiness and dizziness. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information Take off all contaminated clothing immediately. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

Environmental precautions

7. Handling and storage

Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not get this material in contact with eyes. Avoid breathing mist or vapor. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store in a closed container away from incompatible materials. Store between 35°F (2°C) and 120°F (49°C).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
1-Propanol (CAS 71-23-8)	PEL	500 mg/m3
		200 ppm
2-Propanol (CAS 67-63-0)	PEL	980 mg/m3
		400 ppm
Ethanol (CAS 64-17-5)	PEL	1900 mg/m3
		1000 ppm
Ethyl acetate (CAS 141-78-6)	PEL	1400 mg/m3
		400 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
1-Methoxy-2-propanol (CAS 107-98-2)	STEL	100 ppm
	TWA	50 ppm
1-Propanol (CAS 71-23-8)	TWA	100 ppm
	STEL	400 ppm
2-Propanol (CAS 67-63-0)	TWA	200 ppm
	STEL	1000 ppm
Ethyl acetate (CAS 141-78-6)	TWA	400 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
1-Methoxy-2-propanol (CAS 107-98-2)	STEL	540 mg/m3	
		150 ppm	
	TWA	360 mg/m3 100 ppm	
1-Propanol (CAS 71-23-8)	STEL	625 mg/m3	
		250 ppm	
	TWA	500 mg/m3 200 ppm	
29H,31H-Phthalocyaninato(2-)-N29,N30,N31,N32 copper (CAS 147-14-8)	TWA	0.1 mg/m3	Fume.
2-Propanol (CAS 67-63-0)	STEL	1225 mg/m3	
		500 ppm	
	TWA	980 mg/m3 400 ppm	
Ethanol (CAS 64-17-5)	TWA	1900 mg/m3	
		1000 ppm	
Ethyl acetate (CAS 141-78-6)	TWA	1400 mg/m3	
		400 ppm	

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
2-Propanol (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

- 1-Methoxy-2-propanol (CAS 107-98-2) Can be absorbed through the skin.
- 1-Propanol (CAS 71-23-8) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

- 1-Propanol (CAS 71-23-8) Skin designation applies.

US. NIOSH: Pocket Guide to Chemical Hazards

- 1-Propanol (CAS 71-23-8) Can be absorbed through the skin.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Provide eyewash station. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear approved safety goggles.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Skin protection

Other

Wear suitable protective clothing.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Various.

Odor Characteristic.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range 168.8 °F (76 °C)

Flash point 30.2 °F (-1.0 °C)

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 2.1 % v/v

Flammability limit - upper (%) 15 % v/v

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 97 hPa at 20°C

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Partial.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature 518 °F (270 °C)

Decomposition temperature Not available.

Viscosity Not available.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid Keep away from heat, sparks and open flame. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents. Strong acids. Strong bases. Alkali metals. Halogens.

Hazardous decomposition products Carbon oxides. Nitrogen oxides. Metal oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation May cause irritation to the respiratory system. May cause drowsiness and dizziness. Prolonged inhalation may be harmful.

Skin contact Prolonged or repeated contact may dry skin and cause irritation.

Eye contact Causes serious eye irritation.

Ingestion May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory irritation. Vapors may cause drowsiness and dizziness. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects**Acute toxicity** May cause respiratory irritation. Narcotic effects.

Components	Species	Test Results
1-Methoxy-2-propanol (CAS 107-98-2)		
Acute		
Dermal		
LD50	Rabbit	13000 mg/kg
Inhalation		
LC50	Rat	>= 6 mg/l, 4 Hours
Oral		
LD50	Rat	> 5000 mg/kg
29H,31H-Phthalocyaninato(2-)-N29,N30,N31,N32 copper (CAS 147-14-8)		
Acute		
Oral		
LD50	Rat	> 10000 mg/kg
Ethanol (CAS 64-17-5)		
Acute		
Inhalation		
LC50	Rat	30000 mg/m3
Ethyl acetate (CAS 141-78-6)		
Acute		
Dermal		
LD50	Guinea pig	3 g/kg
Inhalation		
LC50	Rat	16000 mg/l, 6 Hours
Oral		
LD50	Rat	5600 mg/kg
Skin corrosion/irritation	Prolonged or repeated contact may dry skin and cause irritation.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Titanium dioxide is considered carcinogenic only when in an inhalable powdered form.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Titanium dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.	
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not regulated.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	May cause respiratory irritation. May cause drowsiness or dizziness.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. The product contains organic solvents which may be absorbed into the body by skin contact and cause permanent damage to the nervous system, including the brain.	

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Test Results
Ethyl acetate (CAS 141-78-6)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 2306 mg/l, 24 Hours
Fish	LC50	Indian catfish (Heteropneustes fossilis) 200 - 225 mg/l, 96 Hours

Persistence and degradability No data available.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

2-Propanol (CAS 67-63-0)	0.05
Ethanol (CAS 64-17-5)	-0.31
Ethyl acetate (CAS 141-78-6)	0.73

Mobility in soil The product is partially soluble in water. Expected to be mobile in soil.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1210
UN proper shipping name	Printing ink, flammable
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	149, IB2, T4, TP1, TP8
Packaging exceptions	150
Packaging non bulk	173
Packaging bulk	242

IATA

UN number	UN1210
UN proper shipping name	Printing ink flammable
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1210
UN proper shipping name	PRINTING INK flammable
Transport hazard class(es)	
Class	3

Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

TSCA Chemical Action Plans, Chemicals of Concern

C.I. Pigment Yellow 83 (CAS 5567-15-7) Dyes Derived from Benzidine and Its Congeners

CERCLA Hazardous Substance List (40 CFR 302.4)

29H,31H-Phthalocyaninato(2-)-N29,N30,N31,N32 copper Listed.
(CAS 147-14-8)

C.I. Pigment Yellow 83 (CAS 5567-15-7) Listed.

Ethanol (CAS 64-17-5) Listed.

Ethyl acetate (CAS 141-78-6) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Flammable (gases, aerosols, liquids, or solids)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)
Hazard not otherwise classified (HNOC)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

C.I. Pigment Yellow 83 (CAS 5567-15-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

1-Propanol (CAS 71-23-8) Low priority

2-Propanol (CAS 67-63-0) Low priority

Ethanol (CAS 64-17-5) Low priority

Ethyl acetate (CAS 141-78-6) Low priority

US state regulations

US. Massachusetts RTK - Substance List

1-Methoxy-2-propanol (CAS 107-98-2)

1-Propanol (CAS 71-23-8)

2-Propanol (CAS 67-63-0)

Ethanol (CAS 64-17-5)

Ethyl acetate (CAS 141-78-6)
Titanium dioxide (CAS 13463-67-7)

US. New Jersey Worker and Community Right-to-Know Act

1-Methoxy-2-propanol (CAS 107-98-2)
1-Propanol (CAS 71-23-8)
29H,31H-Phthalocyaninato(2-)-N29,N30,N31,N32 copper (CAS 147-14-8)
2-Propanol (CAS 67-63-0)
Ethanol (CAS 64-17-5)
Ethyl acetate (CAS 141-78-6)
Titanium dioxide (CAS 13463-67-7)

US. Pennsylvania Worker and Community Right-to-Know Law

1-Methoxy-2-propanol (CAS 107-98-2)
1-Propanol (CAS 71-23-8)
2-Propanol (CAS 67-63-0)
Ethanol (CAS 64-17-5)
Ethyl acetate (CAS 141-78-6)
Titanium dioxide (CAS 13463-67-7)

US. Rhode Island RTK

1-Methoxy-2-propanol (CAS 107-98-2)
1-Propanol (CAS 71-23-8)
2-Propanol (CAS 67-63-0)
Ethanol (CAS 64-17-5)
Ethyl acetate (CAS 141-78-6)
Titanium dioxide (CAS 13463-67-7)

California Proposition 65



WARNING: This product can expose you to C.I. Pigment Yellow 83, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

C.I. Pigment Yellow 83 (CAS 5567-15-7) Listed: October 1, 1992 Durabrite Yellow and Orange Only

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

1-Methoxy-2-propanol (CAS 107-98-2)
2-Propanol (CAS 67-63-0)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	22-May-2015
Revision date	13-August-2018
Version #	02
Further information	HMIS® is a registered trade and service mark of the NPCA.
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0

NFPA ratings



Disclaimer

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