

## MATERIAL SAFETY DATA SHEET

### SECTION 1 - IDENTIFICATION

**Product identifier** : **INTROFIANT, D.C.**

**Product Code(s)** : None reported.

**Product Use** : Arterial embalming chemical.

**Chemical Family** : Mixture.

**Supplier's name and address:**  
**The Dodge Chemical Company (Canada) Ltd.**  
 1265 Fewster Drive  
 Mississauga, Ontario, Canada  
 L4W 1A2

**Manufacturer's name and address:**  
 Refer to Supplier

**Information Telephone #** : (905) 625-0311

**24 Hr. Emergency Tel #** : (613) 996-6666 (CANUTEC)

### SECTION 2 - HAZARDS IDENTIFICATION

**Classification** : WHMIS classification:  
 Class B3 (Combustible Liquids);  
 Class D1A (Materials Causing Immediate and Serious Toxic Effects, Very Toxic Material);  
 Class D2A (Materials Causing Other Toxic Effects, Very Toxic Material);  
 Class D2B (Materials Causing Other Toxic Effects, Toxic Material);  
 Class E (Corrosive Material).

OSHA: This material is classified as hazardous under OSHA regulations (29CFR 1910.1200). Hazardous classification:  
 Combustible liquid;  
 Acute Health Hazard;  
 Chronic Health Hazard.

**Emergency Overview** : Clear, red liquid. Pungent odour.  
 Danger.  
 Combustible liquid and vapor. POISON! May be fatal if inhaled. May be fatal or cause blindness if swallowed in sufficient quantities. Harmful or fatal if absorbed through the skin. Corrosive material. Prolonged contact may produce chemical burns to affected skin areas. Causes eye burns. May cause digestive tract burns. May cause allergic skin reaction. Prolonged or repeated overexposure could cause disorders of the nervous system, liver and kidneys. Contains material which may cause adverse blood system effects. Possible birth defect hazard - contains material that may cause birth defects, based on animal data. Possible cancer hazard - contains material which may cause cancer.

### POTENTIAL HEALTH EFFECTS:

#### Signs and symptoms of short-term (acute) exposure

- Inhalation* : May cause severe irritation to the nose, throat and respiratory tract. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness. Could result in pulmonary edema (fluid accumulation). Symptoms may be delayed. May result in unconsciousness and possibly death.
- Skin* : Severely irritating or corrosive. Prolonged contact may produce chemical burns to affected skin areas. May be absorbed and cause symptoms similar to those for inhalation. Prolonged or repeated contact may cause a hardening or tanning effect.
- Eyes* : Exposure to high vapour concentrations or contact with liquid causes severe irritation, redness, tearing and pain. Prolonged contact may cause corrosive burns and eye damage. Could result in permanent damage and blindness.
- Ingestion* : Poison, may be fatal or cause blindness if swallowed. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Severe stomach pains, vomiting, diarrhea, and liver and kidney injury may follow. May be absorbed and cause symptoms similar to those for inhalation.

#### Effects of long-term (chronic) exposure

- : Prolonged or repeated skin contact may cause drying and irritation. Prolonged overexposure may cause liver and kidney effects. Contains material which may cause adverse blood system effects.

**Carcinogenic status** : Possible cancer hazard. See TOXICOLOGICAL INFORMATION, Section 11.

**Additional health hazards** : Possible sensitizer. Potential teratogen. Possible mutagen. See TOXICOLOGICAL INFORMATION, Section 11.

**Potential environmental effects** : See ECOLOGICAL INFORMATION, Section 12.

### SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	<u>CAS #</u>	<u>Wt.%</u>
Formaldehyde	50-00-0	15.00 - 40.00
Methanol	67-56-1	7.00 - 13.00
Propylene glycol	57-55-6	1.00 - 5.00
Sodium tetraborate	1303-96-4	1.00 - 5.00

### SECTION 4 - FIRST AID MEASURES

**Inhalation** : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. Keep warm and in a quiet place. Seek immediate medical attention/advice.

**Skin contact** : Remove contaminated clothing. Flush affected skin with gently flowing lukewarm water for at least 20 minutes. Seek immediate medical attention/advice. Wash contaminated clothing before re-use.

**Eye contact** : Immediately flush eyes with running water for at least 20 minutes. Seek immediate medical attention/advice.

**Ingestion** : Call a physician or Poison Control Centre immediately. Do NOT induce vomiting. This material is corrosive to the digestive tract. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person.

**Notes For Physician** : Immediate medical attention is required. Contains methanol. Treat symptomatically.

### SECTION 5 - FIRE FIGHTING MEASURES

#### Fire hazards/conditions of flammability

: Combustible liquid and vapour. This material may be ignited by heat, sparks and direct flame. Vapours are heavier than air and collect in confined and low-lying areas. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

#### Flammability classification (OSHA 29 CFR 1910.1200)

: Class II Combustible Liquid.

#### Oxidizing properties

: Not known.

#### Explosion data: Sensitivity to mechanical impact / static discharge

: Not expected to be sensitive to mechanical impact. Vapours in the flammable range may be ignited by a static discharge of sufficient energy.

#### Suitable extinguishing media

: Dry chemical, foam, carbon dioxide and water fog.

#### Special fire-fighting procedures/equipment

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Avoid spreading burning liquid with water spray used for cooling purposes.

#### Hazardous combustion products

: May form formaldehyde gas, carbon oxides, hydrogen, formic acid and various hydrocarbons.

#### NFPA Rating

0 - Minimal    1 - Slight    2 - Moderate    3 - Serious    4 - Severe  
: *Health:* 3    *Flammability:* 2    *Instability:* 0    *Special Hazards:* None.

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

**Personal precautions** : Restrict access to area until completion of clean-up. Keep all other personnel upwind and away from the spill/release. Individuals involved in the cleanup must wear appropriate personal protective equipment. Refer to protective measures listed in sections 7 and 8.

- Environmental precautions** : Prevent product from entering drains, sewers, waterways and soil. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.
- Spill response/cleanup** : Remove all sources of ignition. Ventilate area of release. Stop the spill at source if it is safe to do so. Contain and absorb spilled material with inert, non-combustible absorbent material, such as sand. Neutralize spill with a diluted solution (< 5%) of ammonia or sodium sulfite. Refer to Section 13 for disposal of contaminated material. Notify the appropriate authorities as required.
- Prohibited materials** : Do not use combustible absorbents, such as sawdust.
- Special spill response procedures** : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002).  
US CERCLA Reportable quantity (RQ): formaldehyde (100 lbs / 45.4 kg); Methanol (5000 lbs / 2270 kg).

**SECTION 7 - HANDLING AND STORAGE**

- Safe Handling procedures** : Wear chemically resistant protective equipment during handling. Use only in well-ventilated areas. Do not breathe vapours or spray mist. Avoid contact with eyes, skin and clothing. Keep away from heat, sparks, and open flames. Keep away from bases and incompatibles. Use caution when opening cap. Keep containers tightly closed when not in use. Wash thoroughly after handling.
- Storage requirements** : Store in a cool, dry, well-ventilated area. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. No smoking in the area. Inspect periodically for damage or leaks. Do not store for long periods of time below 2°C (35°F), or above 43.3°C (110°F).
- Incompatible materials** : Avoid contact with strong oxidizers, strong alkalies, strong mineral acids, phenol and urea.
- Special packaging materials** : Always keep in containers made of the same materials as the supply container.

**SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION**

<u>Exposure Limits</u>				
<u>Ingredients</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Formaldehyde	0.3 ppm (ceiling)	N/Av	0.75 ppm	2 ppm
Methanol	200 ppm (skin)	250 ppm (skin)	200 ppm	N/Av
Propylene glycol	*10 mg/m <sup>3</sup>	N/Av	N/Av	N/Av
Sodium tetraborate	*2 mg/m <sup>3</sup> (inhalable fraction)	*6 mg/m <sup>3</sup> (inhalable fraction)	10 mg/m <sup>3</sup> (final rule limit)	N/Av

\*Note: The ACGIH TLV listed above for Propylene glycol is an AIHA WEEL. The ACGIH TLV listed above for Sodium tetraborate is as 'Borate compounds, inorganic'.

- Ventilation and engineering measures** : Local exhaust ventilation is preferred to prevent contaminant dispersion into work area.
- Respiratory protection** : Use NIOSH/MSHA approved full-face respirator with an organic vapour cartridge if the recommended exposure limit is exceeded.
- Skin protection** : Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers.
- Eye / face protection** : Chemical splash goggles are recommended. A full face shield may also be necessary.
- Other protective equipment** : An eyewash station and safety shower should be made available in the immediate working area. Depending on conditions of use, an impervious apron should be worn.
- General hygiene considerations** : Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse.

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

**Physical state** : Liquid **Appearance** : red; clear

<b>Odour</b>	: Pungent odour.	<b>Odour threshold</b>	: N/Av
<b>pH</b>	: 8.0 - 9.0		
<b>Boiling point</b>	: 90 - 92°C (194 - 198°F)	<b>Specific gravity</b>	: 1.08 - 1.09
<b>Melting/Freezing point</b>	: N/Av	<b>Coefficient of water/oil distribution</b>	: N/Av
<b>Vapour pressure (mmHg @ 20° C / 68° F)</b>	: N/Av	<b>Solubility in water</b>	: Complete
<b>Vapour density (Air = 1)</b>	: > 1	<b>Evaporation rate (n-Butyl acetate = 1)</b>	: < 1
<b>Volatile organic Compounds (VOC's)</b>	: N/Av	<b>Volatiles (% by weight)</b>	: 96%
<b>Flash point</b>	: 53 - 56°C (128 - 132°F)		
<b>Flash point Method</b>	: TCC	<b>Auto-ignition temperature</b>	: N/Av
<b>Lower flammable limit (% by vol.)</b>	: 7 (formaldehyde)	<b>Upper flammable limit (% by vol.)</b>	: 73 (formaldehyde)
<b>Flame Projection Length</b>	: N/Av	<b>Flashback observed</b>	: N/Av

**Section 10: Stability And Reactivity**

<b>Stability and reactivity</b>	: Stable under the recommended storage and handling conditions prescribed. At higher temperatures, product may form formic acid and methanol.
<b>Hazardous polymerization</b>	: Hazardous polymerisation does not occur.
<b>Conditions to avoid</b>	: Avoid heat and open flame. Exposure to cold may cause precipitation of the polymer, will redissolve upon gentle heating.
<b>Materials To Avoid And Incompatibility</b>	: Avoid contact with strong oxidizers, strong alkalies, strong mineral acids, phenol and urea.
<b>Hazardous decomposition products</b>	: Methanol; Formic acid. Refer to Section 5 for additional 'Hazardous combustion products'.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

<b>Target organs</b>	: Eyes, skin, respiratory system, central nervous system, liver and kidneys.
<b>Routes of exposure</b>	: <i>Inhalation</i> : YES <i>Skin Absorption</i> : YES <i>Skin &amp; Eyes</i> : YES <i>Ingestion</i> : YES
<b>Toxicological data</b>	: There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

<b>Ingredients</b>	<b>LC<sub>50</sub>(4hr)</b>	<b>LD<sub>50</sub></b>	
	<b>inh, rat</b>	<b>(Oral, rat)</b>	<b>(Rabbit, dermal)</b>
Formaldehyde	287 ppm	42 mg/kg (mouse); 100 mg/kg (rat)	300 mg/kg
Methanol	64,000 ppm	5628 mg/kg	15,800 mg/kg
Propylene glycol	N/Av	21,800 mg/kg	20,800 mg/kg
Sodium tetraborate	> 2030 mg/m <sup>3</sup>	2660 mg/kg	> 2000 mg/kg

<b>Carcinogenic status</b>	: Formaldehyde is classified as carcinogenic by IARC (Group 1), ACGIH (Group A2) and NTP (Group 2).
<b>Reproductive effects</b>	: This product contains Disodium tetraborate, decahydrate (CAS # 1303-96-4). The data regarding subchronic and chronic oral exposure to boric acid or borax (Disodium tetraborate, decahydrate) in laboratory animals have demonstrated reproductive toxicity. Available animal data indicates that this substance has toxic effects on the male reproductive tract. Testicular lesions have been observed in rats, mice, and dogs administered boric acid or borax in food or drinking-water (INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY Environmental Health Criteria document # 204).
<b>Teratogenicity</b>	: Contains methanol, which may cause teratogenic effects at doses which are not maternally toxic. This product contains Disodium tetraborate, decahydrate (CAS # 1303-96-4). Sodium tetraborate has been investigated as a developmental hazard.
<b>Mutagenicity</b>	: This product contains Formaldehyde, which may cause mutations to non-reproductive cells (somatic cells), based on animal data.
<b>Epidemiology</b>	: Not available.

- Sensitization to material** : May cause severe skin sensitization with allergic contact dermatitis symptoms such as swelling, rash and eczema. No data available to indicate product or components may be respiratory sensitizers.
- Synergistic materials** : N/Av
- Irritancy** : Corrosive
- other important hazards** : May cause blindness if swallowed.
- Conditions aggravated by overexposure** : Pre-existing skin, respiratory, renal or nervous system disorders.



## SECTION 12 - ECOLOGICAL INFORMATION

- Ecotoxicity** : There is no data available for this product. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.
- Mobility** : No data is available on the product itself.
- Persistence** : No data is available on the product itself.
- Bioaccumulation potential** : No data is available on the product itself.
- Other Adverse Environmental effects** : No data is available on the product itself.

## SECTION 13 - DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle waste according to recommendations in Section 7.
- Methods of Disposal** : Improper disposal can cause damage to the environment. Dispose in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.
- RCRA** : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

## SECTION 14: TRANSPORT INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (formaldehyde; Methanol)	3(8)	III	
<b>TDG Additional information</b>	May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption.				
49CFR/DOT	UN2924	Flammable liquids, corrosive, n.o.s. (Contains: Formaldehyde; Methanol)	3	III	
<b>49CFR/DOT Additional information</b>	May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. Refer to 49 CFR Section 173.150. US CERCLA Reportable quantity (RQ): formaldehyde (100 lbs / 45.4 kg); Methanol (5000 lbs / 2270 kg).				

## SECTION 15 - REGULATORY INFORMATION

### US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

CERCLA Reportable Quantity (RQ) (40 CFR 117.302): formaldehyde (100 lbs / 45.4 kg); Methanol (5000 lbs / 2270 kg).

SARA TITLE III: Sec. 302, Extremely Hazardous Substances, 40 CFR 355: This product contains an Extremely Hazardous Substance under SARA Section 302. Contains: formaldehyde.

SARA TITLE III: Sec. 311 and 312, MSDS Requirements, 40 CFR 370 Hazard Classes: Fire Hazard; Acute Health Hazard; Chronic Health Hazard. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This product may be subject to SARA notification requirements, since it contains Toxic Chemical constituents above their de minimus concentrations. This product contains: formaldehyde; Methanol.

**US State Right to Know Laws:**

California Proposition 65: This product contains a chemical known to the State of California to cause cancer. Contains: formaldehyde.

Other U.S. State "Right to Know" Lists: The following chemicals are specifically listed by individual States: formaldehyde (CA, MA, MN, NJ, PA, RI); Methanol (CA, MA, MN, NJ, PA, RI); Propylene glycol (MN, NJ, PA, RI); Sodium tetraborate (CA, MA, MN, NJ, PA, RI).

**International Information:**

WHMIS information: This product is a WHMIS Controlled Product. It meets one or more of the criteria for a controlled product provided in Part IV of the Canadian Controlled Products Regulations (CPR). Refer to Section 2 for a WHMIS Classification for this product.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.**

**SECTION 16 - OTHER INFORMATION**


<b>HMIS Rating</b>	:	<b>* - Chronic hazard</b>	<b>0 - Minimal</b>	<b>1 - Slight</b>	<b>2 - Moderate</b>	<b>3 - Serious</b>	<b>4 - Severe</b>
		<i>Health: *3</i>		<i>Flammability: 2</i>		<i>Reactivity: 0</i>	

- Legend** :
- ACGIH: American Conference of Governmental Industrial Hygienists
  - AIHA: American Industrial Hygiene Association
  - CA: California
  - CAS: Chemical Abstract Services
  - CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
  - CFR: Code of Federal Regulations
  - DOT: Department of Transportation
  - EPA: Environmental Protection Agency
  - HMIS: Hazardous Materials Identification System
  - HSDB: Hazardous Substances Data Bank
  - IARC: International Agency for Research on Cancer
  - Inh: Inhalation
  - LC: Lethal Concentration
  - LD: Lethal Dose
  - MA: Massachusetts
  - MN: Minnesota
  - MSHA: Mine Safety and Health Administration
  - N/Av: Not Available
  - N/Av: Not Available
  - NFPA: National Fire Protection Association
  - NJ: New Jersey
  - NTP: National Toxicology Program
  - NIOSH: National Institute of Occupational Safety and Health
  - OSHA: Occupational Safety and Health Administration
  - PA: Pennsylvania
  - PEL: Permissible exposure limit
  - RCRA: Resource Conservation and Recovery Act
  - RI: Rhode Island
  - RTECS: Registry of Toxic Effects of Chemical Substances
  - SARA: Superfund Amendments and Reauthorization Act

STEL: Short Term Exposure Limit  
 TCC: Tagliabue Closed Cup  
 TDG: Canadian Transportation of Dangerous Goods Act & Regulations  
 TLV: Threshold Limit Values  
 TWA: Time Weighted Average  
 WEEL: Workplace Environmental Exposure Level  
 WHMIS: Workplace Hazardous Materials Identification System

**References**

- : 1. ACGIH, Threshold Limit Values and Biological Exposure Indices for 2009.
- 2. International Agency for Research on Cancer Monographs, searched 2009.
- 3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2009 (Chempendium, HSDB and RTECs).
- 4. Material Safety Data Sheet from manufacturer.
- 5. US EPA Title III List of Lists - October 2006 version.
- 6. California Proposition 65 List - December 18, 2009 version.

<p><b>Prepared for:</b>          The Dodge Chemical Company (Canada) Ltd.          1265 Fewster Drive          Mississauga, ON, Canada          L4W 1A2          Telephone: (905) 625-0311          Please direct all enquiries to The Dodge Chemical Company (Canada).</p>	
<p><b>Prepared by:</b>          ICC The Compliance Center Inc.  <a href="http://www.thecompliancecenter.com">http://www.thecompliancecenter.com</a></p>	

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**Revision Information**

: Converted from 9 section format to 16 section format. All sections modified.

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