

**Safety Data Sheet (SDS)**

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 07/21/2015

Reviewed on 07/21/2015

**1 Identification**

- **Product identifier**
- **Trade name: IMAGE ARMOR DTG INK CLEANING SOLUTION**
- **Relevant identified uses of the substance or mixture and uses advised against:**  
For use in cleaning DTG Printer ink lines and print heads. DO NOT LEAVE IN PRINTER FOR EXTENDED PERIODS OF TIME OR DAMAGE TO PRINTHEADS, COMPONENTS, INK LINES CAN OCCUR. Can also be used for cleaning and flushing the capping station, wiper and other printer components.
- **Product description** Clear Solution designed for internal and external cleaning of DTG printer ink.
- **Details of the supplier of the safety data sheet:**
- **Manufacturer/Supplier:**  
Image Armor, LLC  
220 First Dr. NE  
New Philadelphia, OH 44663  
Phone: 877-673-4377  
Fax: 330-2676-7437  
www.imagearmorinks.com
- **Emergency telephone number:**  
Image Armor LLC - 877-673-4377  
Brian Walker - 330-934-0524

**2 Hazard(s) identification**

- **Classification of the substance or mixture:**



GHS08 Health hazard

STOT RE 2 H373 May cause damage to the central nervous system, the kidneys and the heart through prolonged or repeated exposure.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements:**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**



GHS07 GHS08

- **Signal word:** Warning
- **Hazard-determining components of labeling:**  
Ethylene glycol
- **Hazard statements:**  
Causes skin irritation.  
Causes serious eye irritation.

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May cause damage to the central nervous system, the kidneys and the heart through prolonged or repeated exposure.

**Precautionary statements:**

- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wash thoroughly after handling.
- Wear protective gloves.
- Wear eye protection / face protection.
- Get medical advice/attention if you feel unwell.
- If on skin: Wash with plenty of water.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- Take off contaminated clothing and wash it before reuse.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:**

**NFPA ratings (scale 0 - 4)**



**HMIS-ratings (scale 0 - 4)**



**Hazard(s) not otherwise classified (HNOC):** None known

**3 Composition/information on ingredients**

- Chemical characterization: Mixtures**
- Description:** Mixture of substances listed below with nonhazardous additions.

**Dangerous Components:**

CAS: 107-21-1	Ethylene glycol	5-10%
RTECS: KW 2975000	☠ STOT RE 2, H373; ⚠ Acute Tox. 4, H302	
CAS: 112-34-5	Diethylene Glycol Monobutyl Ether	1-5%
RTECS: KJ 9100000	⚠ Eye Irrit. 2, H319; Flam. Liq. 4, H227	
CAS: 616-45-5	2-pyrrolidone	1-5%
RTECS: UY5715000	⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	
CAS: 102-71-6	Triethanolamine, TEA	1-5%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2B, H320	

**4 First-aid measures**

- Description of first aid measures:**
- General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.

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In case of unconsciousness, place patient securely on side position for transportation.

- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
If skin irritation occurs, consult a doctor.
- **After eye contact:**  
Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Seek medical treatment.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed:** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed:**  
No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media:**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture:**  
Decomposition may produce oxides of carbon, nitrogen, sulfur, hydrocarbons, fumes and smoke.
- **Advice for firefighters:**
- **Protective equipment:**  
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures:**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Ensure adequate ventilation.  
Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to section 13.
- **Reference to other sections:**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling:**  
Ensure good ventilation/exhaustion at the workplace.  
Avoid contact with skin, eyes and clothing  
Avoid breathing fume/gas/mist/vapors/spray.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities:**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Do not store in direct sunlight. Keep from freezing. Keep out of reach of children.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

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- **Specific end use(s):** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters:**

- **Components with occupational exposure limits:**

**107-21-1 Ethylene glycol**

TLV	Short-term value: NIC-127* mg/m <sup>3</sup> Long-term value: NIC-10** NIC-63.5* mg/m <sup>3</sup> , NIC-25* ppm Ceiling limit value: (100) mg/m <sup>3</sup> (H); *inh. fraction + vapor, P:**inh. fraction, H
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**112-34-5 Diethylene Glycol Monobutyl Ether**

TLV	Long-term value: 67.5* mg/m <sup>3</sup> , 10* ppm *Inhalable fraction and vapor
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**102-71-6 Triethanolamine, TEA**

TLV	Long-term value: 5 mg/m <sup>3</sup>
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- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

- **Exposure controls:**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.  
 Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing and wash before reuse.  
 Wash hands before breaks and at the end of work.  
 Avoid contact with the eyes and skin.

- **Breathing equipment:** Not required.

- **Protection of hands:**



Protective gloves

- **Penetration time of glove material:**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

- **Eye protection:**



Tightly sealed goggles

- **Body protection:**



Protective work clothing

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### 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	Clear to hazy
· <b>Odor:</b>	Slight
· <b>Odor threshold:</b>	Not determined.

· **pH-value @ 20 °C (68 °F):** 8

· **Change in condition**

· <b>Melting point/Melting range:</b>	Not determined.
· <b>Boiling point/Boiling range:</b>	>100 °C (>212 °F)

· **Flash point:** 111 °C (232 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 225 °C (437 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not self-igniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

· <b>Lower:</b>	3.2 Vol %
· <b>Upper:</b>	53.0 Vol %

· **Vapor pressure @ 20 °C (68 °F):** 0.1 hPa

· **Density:**

· <b>Relative density:</b>	Not determined.
· <b>Vapor density:</b>	Not determined.
· <b>Evaporation rate:</b>	Not determined.

· **Solubility in / Miscibility with:**

· **Water:** Fully miscible.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· <b>Dynamic:</b>	Not determined.
· <b>Kinematic:</b>	Not determined.

· **Solvent content:**

· <b>Organic solvents:</b>	10.0 %
· <b>VOC content:</b>	10.0 %

· **Solids content:** 5.0 %

· **Other information:** No further relevant information available.

### 10 Stability and reactivity

· **Reactivity:** No further relevant information available.

· **Chemical stability:** Stable under normal conditions.

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- **Thermal decomposition / conditions to be avoided:**  
Oxides of carbon, nitrogen, hydrocarbons, fumes, and smoke
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Acids, bases and oxidizers
- **Incompatible materials:** Incompatible or can react with acids, bases and oxidizers.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects:**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

#### 107-21-1 Ethylene glycol

Oral	LD50	5840 mg/kg (rat)
Dermal	LD50	9530 mg/kg (rabbit)
Inhalative	LC50/96 hours	38.109 mg/l (Trout)
	LC50/48 hrs	16.103 mg/l (daphnia)

#### 112-34-5 Diethylene Glycol Monobutyl Ether

Oral	LD50	5660 mg/kg (rat)
Dermal	LD50	4000 mg/kg (rabbit)

#### 616-45-5 2-pyrrolidone

Oral	LD50	328 mg/kg (rat)
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#### 102-71-6 Triethanolamine, TEA

Oral	LD50	5530 mg/kg (rat)
		2200 mg/kg (rabbit)
		LD50 Oral 2200 ml/kg (Guinea Pig)
Dermal	LD50	5846 ml/kg (mouse)
		>22500 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:**  
Irritating effect.  
Causes serious eye irritation.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

102-71-6	Triethanolamine, TEA	3
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- **NTP (National Toxicology Program)**

None of the ingredients are listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

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### 12 Ecological information

· **Toxicity**

· <b>Aquatic toxicity:</b>	
<b>107-21-1 Ethylene glycol</b>	
EC50	3.536 mg/l (Green algae)
<b>102-71-6 Triethanolamine, TEA</b>	
EC50	609.98 mg/l (daphnia)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Do not allow undiluted product or product that has not been neutralized to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** Non-Regulated Material
- **UN proper shipping name**
- **DOT, ADR, IMDG, IATA** Non-Regulated Material
- **Transport hazard class(es)**
- **DOT, ADR, IMDG, IATA**
- **Class** Non-Regulated Material
- **Packing group**
- **DOT, ADR, IMDG, IATA** Non-Regulated Material
- **Environmental hazards:** Not applicable.
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** Non-Regulated Material

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### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

107-21-1 Ethylene glycol

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **California Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

· **TLV (Threshold Limit Value established by ACGIH)**

107-21-1 Ethylene glycol

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07 GHS08

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Ethylene glycol

· **Hazard statements**

Causes skin irritation.

Causes serious eye irritation.

May cause damage to the central nervous system, the kidneys and the heart through prolonged or repeated exposure.

· **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapors/spray.



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Wash thoroughly after handling.  
 Wear protective gloves.  
 Wear eye protection / face protection.  
 Get medical advice/attention if you feel unwell.  
 If on skin: Wash with plenty of water.  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 If skin irritation occurs: Get medical advice/attention.  
 If eye irritation persists: Get medical advice/attention.  
 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).  
 Take off contaminated clothing and wash it before reuse.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

**• National regulations:**

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

**• State Right to Know**

CAS: 107-21-1 RTECS: KW 2975000	Ethylene glycol ⚠ STOT RE 2, H373; ⚠ Acute Tox. 4, H302	5-10%
CAS: 112-34-5 RTECS: KJ 9100000	Diethylene Glycol Monobutyl Ether ⚠ Eye Irrit. 2, H319; Flam. Liq. 4, H227	1-5%
CAS: 616-45-5 RTECS: UY5715000	2-pyrrolidone ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	1-5%
CAS: 102-71-6	Triethanolamine, TEA ⚠ Skin Irrit. 2, H315; Eye Irrit. 2B, H320	1-5%

All ingredients are listed.

**• Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

**• Date of preparation / last revision** 07/21/2015 / -

**• Abbreviations and acronyms:**

- ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Flam. Liq. 4: Flammable liquids, Hazard Category 4
- Acute Tox. 4: Acute toxicity, Hazard Category 4
- Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
- Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

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Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B

STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2

· **\* Data compared to the previous version altered.**

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