

Printing date 02/08/2017

Reviewed on 02/08/2017

1 Identification of the substance/mixture and of the company

- **Product identifier**
- **Trade name:** UV-2533 UV Curable Matte Dielectric - Blue
- **Application of the substance / the mixture:** *Functional electronic insulating ink*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
*Applied Ink Solutions
17 Hampshire Drive, Unit 8
Hudson, NH 03051*
- **Information department:**
*Product Safety
Email: sales@appliedinksolutions.com*
- **Emergency telephone number:**
*Chemtrec USA Emergency : 800-424-9300
Chemtrec International Emergency : 703-527-3887
Applied Ink Solutions : 603-595-6221*

2 Hazard(s) identification

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



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 STOT SE 3 H335 May cause respiratory irritation.
 Flam. Liq. 4 H227 Combustible liquid.
 Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **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:**
Dipentaerythritol pentaacrylate esters
- **Hazard statements:**
*H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.*

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H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use for extinction: Alcohol resistant foam.
P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.
P370+P378 In case of fire: Use for extinction: Carbon dioxide.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system

NFPA ratings (scale 0 - 4):



HMIS-ratings (scale 0 - 4):



Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

	Urethane acrylate oligomer	40-60%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1B, H317	
60506-81-2	Dipentaerythritol pentaacrylate esters	25-50%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335; Flam. Liq. 4, H227	
14807-96-6	Talc (Mg ₃ H ₂ (SiO ₃) ₄)	10-25%
	⚠ Carc. 2, H351	

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24650-42-8	2,2-dimethoxy-2-phenylacetophenone ⚠ Aquatic Acute 1, H400; Aquatic Chronic 2, H411	1-5%
	Acrylic leveling agent ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319	1-5%
	Proprietary Dye ⚠ Eye Irrit. 2A, H319; Skin Sens. 1A, H317	<1%
119-61-9	Benzophenone ⚠ Carc. 2, H351; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<1%

4 First-aid measures

- **Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.

- **After inhalation:** Supply fresh air and to be sure call for a doctor.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:**

Wash eyes immediately with a large amount of water or normal saline, occasionally lifting upper and lower eye lids until no evidence of chemical remains (about 20 minutes). Remove contact lenses if present and easy to remove. Seek immediate medical attention.

- **After swallowing:**

Do not induce vomiting unless instructed to do so by a physician. Wash out mouth with water and keep person at rest. Seek immediate medical attention.

- **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:** Treat symptomatically.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

Alcohol resistant foam

Fire-extinguishing powder

ABC powder

- **For safety reasons, unsuitable extinguishing agents:** Water spray.

- **Special hazards arising from the substance or mixture:** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:** Wear SCBA.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:** Not required.

- **Environmental precautions:**

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to Section 13.

Ensure adequate ventilation.

- **Reference to other sections:**

See Section 7 for information on safe handling.

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See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
 - Ensure good ventilation/exhaust at the workplace.
 - Open and handle container with care.
 - Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respirator available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:**
 - Store away from reducing agents.
 - Store away from oxidizing agents.
- **Further information about storage conditions:**
 - Keep container well-sealed in cool, dry location.
 - Protect from heat and direct sunlight.
 - Store receptacle in a well ventilated area.
- **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 item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
 - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures:**
 - Keep away from food and beverages.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Store protective clothing separately.
 - Avoid contact with the eyes and skin.
- **Respiratory equipment:**
 - In case of low exposure, use cartridge respirator. In case of intensive or longer exposure, use SCBA.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Material of gloves:** Nitrile rubber, NBR
- **Penetration time of glove material:** Contact glove manufacture for break-through time.

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· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form: Thick liquid
Color: Clear to light yellow, green, blue, or black

· **Odor:** Sweet
· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.

· **Flash point:** 93 °C (199 °F)

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

· **Ignition temperature**

Decomposition temperature: Not determined.

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

· **Danger of explosion:** Not determined.

· **Explosion limits**

Lower: Not determined.
Upper: Not determined.

· **Vapor pressure:** Not determined.

· **Density at 20 °C (68 °F):** 1.09 g/cm³ (9.08 lbs/gal)

· **Relative density:** Not determined.

· **Vapor density:** Not determined.

· **Evaporation rate:** 1.6-2.3 (BuAc=1)

· **Solubility in / Miscibility with**

Water: Water miscible No

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

· **Viscosity**

Dynamic: Not determined.
Kinematic: Not determined.

· **Solvent content**

Organic solvents: 0.0 %

Solids content: 100%

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· Other information

No further relevant information available.

10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Stable under normal use conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid**
Heat, flames and sparks. Extremes of temperature and direct sunlight.
Contact with incompatible materials.
- **Incompatible materials:** Strong oxidizing agents, strong reducing agents.
- **Hazardous decomposition products:**
Carbon monoxide and carbon dioxide.
No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **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):

14807-96-6	Talc (Mg ₃ H ₂ (SiO ₃) ₄)	2B
119-61-9	Benzophenone	2B

· NTP (National Toxicology Program):

None of the ingredients are listed.

· OSHA-Ca (Occupational Safety & Health Administration):

None of the ingredients are listed.

12 Ecological information

· Toxicity
· Aquatic toxicity:

24650-42-8	2,2-dimethoxy-2-phenylacetophenone
EC50/48 h	26 mg/l (daphnia magna)

- **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.

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- **Ecotoxicological effects**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms.
- **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 as regular garbage/trash. Do not allow product to reach sewage system.
Disposal must be made in accordance with Federal, State, and Local regulations.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA:	Not Regulated
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA:	Not Regulated
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA:	
· Class	Not Regulated
· Packing group	
· DOT, ADR, IMDG, IATA:	Not Regulated
· Environmental hazards:	Not applicable.
· Special precautions for user:	Not applicable.
· Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.
· UN "Model Regulation":	Not Regulated

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.

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

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):** All ingredients are listed or comply with TSCA regulations.

· **Proposition 65**

· **Chemicals known to cause cancer:**

119-61-9 Benzophenone

· **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):**

14807-96-6 Talc ($Mg_3H_2(SiO_3)_4$)

A4

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

None of the ingredients are listed.

· **New Jersey State Right To Know List:**

119-61-9 Benzophenone

· **Pennsylvania Hazardous Substances List:**

119-61-9 Benzophenone

· **California SCAQMD Rule 443.1 VOC's:** No information available.

· **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:**

Dipentaerythritol pentaacrylate esters

· **Hazard statements:**

H227 Combustible liquid.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H335 May cause respiratory irritation.

H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements:**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use for extinction: Alcohol resistant foam.
P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.
P370+P378 In case of fire: Use for extinction: Carbon dioxide.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:** None

· **Other regulations, limitations and prohibitive regulations:**

RoHS 2 2011/65/EU along with EU Directive 2012/19/EU – Waste from Electrical and Electronic Equipment (WEEE):

Applied Ink Solutions products do not exceed the amount of allowable levels concerning: Cadmium (Cd); Hexavalent Chromium (CrVI); Mercury (Hg); Lead (Pb); Polybrominated Biphenyls (PBB's) as bromide; Polybrominated Diphenyl Ethers (PBDEs) as bromide, decaBDE.

Applied Ink Solutions has confirmed with our precious metal suppliers that they do not use conflict minerals, as outlined in the **Dodd-Frank Wall Street Reform and Consumer Protection Act in Title XV, Section 1502.**

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Product safety department

· **Contact:** Mr. Cole

· **Revision History:** New SDS 11/21/2016

· **Date of preparation / last revision:** 02/08/2017 Rev. 1

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Liq. 4: Flammable liquids, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

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

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*Skin Sens. 1: Sensitization - Skin, Hazard Category 1**Skin Sens. 1A: Sensitization - Skin, Hazard Category 1A**Skin Sens. 1B: Sensitization - Skin, Hazard Category 1B**Carc. 2: Carcinogenicity, Hazard Category 2**STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3**Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1**Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1**Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2**Aquatic Chronic 3: Hazardous to the aquatic environment - Chronic Hazard, Category 3*

US