Applied Ink Solutions
A DIVISION OF MICROCHEM

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/16/2017 *Reviewed on 05/16/2017*

1 Identification of the substance/mixture and of the company

· **Product identifier**

· **Trade name: TD-1227 Thermal Dry Dielectric- Blue**
· **Application of the substance / the mixture** Screen Printing Ink

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Applied Ink Solutions
17 Hampshire Drive, Unit 8
Hudson, NH 03051
USA

· **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**

GHS02 Flame

Flam. Liq. 3	H226 Flammable liquid and vapor.

GHS08 Health hazard

Muta. 1B	H340 May cause genetic defects.
Carc. 1B	H350 May cause cancer.
Repr. 2	H361 Suspected of damaging fertility or the unborn child.

GHS07

Acute Tox. 4	H332 Harmful if inhaled.
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	H336 May cause drowsiness or dizziness.
Aquatic Acute 3	H402 Harmful to aquatic life.
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).

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Trade name: TD-1227 Thermal Dry Dielectric- Blue

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· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Solvent naphtha (petroleum), light arom.
Phenoxy Resin
gamma-Butyrolactone
Silicone Compound

· **Hazard statements**
H226 Flammable liquid and vapor.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H402 Harmful to aquatic life.
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.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
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.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 2
Reactivity = 0

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· **HMIS-ratings (scale 0 - 4)**

HEALTH *1	Health = *1
FIRE 2	Fire = 2
REACTIVITY 0	Reactivity = 0

· **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:**		
96-48-0	gamma-Butyrolactone Acute Tox. 4, H302; Eye Irrit. 2A, H319; STOT SE 3, H336	60-80%
	Phenoxy Resin Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	10-25%
64742-95-6	Solvent naphtha (petroleum), light arom. Flam. Liq. 3, H226; Muta. 1B, H340; Carc. 1B, H350; Asp. Tox. 1, H304	10-25%
	Silicone Compound Repr. 2, H361	1-5%
	Proprietary Dye Eye Irrit. 2A, H319; Skin Sens. 1A, H317	<1%

· **Additional Components:**		
112945-52-5	Silicon dioxide	1-5%
	Leveling Agent	<1%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
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. Keep patient warm. Consult doctor if symptoms persist.
· **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; immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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· **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 with full jet
· **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**
Ensure adequate ventilation
Keep away from ignition sources
Wear protective equipment. Keep unprotected persons away.
· **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).
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
· **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.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
96-48-0	gamma-Butyrolactone	3.6 mg/m3
	Phenoxy Resin	90 mg/m3
112945-52-5	Silicon dioxide	18 mg/m3

· **PAC-2:**		
96-48-0	gamma-Butyrolactone	39 mg/m3
	Phenoxy Resin	990 mg/m3
112945-52-5	Silicon dioxide	100 mg/m3

· **PAC-3:**		
96-48-0	gamma-Butyrolactone	310 mg/m3
	Phenoxy Resin	5,900 mg/m3
112945-52-5	Silicon dioxide	630 mg/m3

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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 ignition sources away - Do not smoke.
Protect against electrostatic charges.
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:**
Do not store together with alkalis (caustic solutions).
Do not store together with oxidizing and acidic materials.
· **Further information about storage conditions:**
Keep container well-sealed in cool, dry location.
Store receptacle in a well ventilated area.
Protect from heat and direct sunlight.
· **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:	Blue
· **Odor:**	Sweet
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	162 °C (324 °F)
· **Flash point:**	45 °C (113 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	445 °C (833 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	0.7 Vol %
Upper:	15.6 Vol %
· **Vapor pressure at 20 °C (68 °F):**	5 hPa (4 mm Hg)
· **Density:**	See other information
· **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:	72.6 %
VOC content:	72.6 %
Solids content:	25.43 - 29.43%

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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 Acids, Strong Bases
· **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
96-48-0 gamma-Butyrolactone		
Oral	LD50	1540 mg/kg (Rat)
Dermal	LD50	5000 mg/kg (gui)
Inhalative	LC50/4 h	>5.1 mg/l (Rat)
Phenoxy Resin		
Oral	LD50	30000 mg/kg (Rat)
Dermal	LD50	>1200 mg/kg (Rat)
64742-95-6 Solvent naphtha (petroleum), light arom.		
Oral	LD50	>6800 mg/kg (Rat)
Dermal	LD50	>3400 mg/kg (rab)
Inhalative	LC50/4 h	>10.2 mg/l (Rat)
Silicone Compound		
Oral	LD50	24134 mg/kg (Rat)
Dermal	LD50	>2.5 mL/kg (rabbit)

· **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:
Harmful
Irritant
Carcinogenic.
The product can cause inheritable damage.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
96-48-0	gamma-Butyrolactone	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.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

96-48-0 gamma-Butyrolactone

LC50/96 h	>220 - <460 mg/l (golden orfe)
EC50/48 h	>500 mg/l (daphnia magna)
EC50/72 h	360 mg/l (green algae)
EC50/17 h	>10000 mg/l (bacterium)

· **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.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Harmful to 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, IMDG, IATA** UN1210

· **UN proper shipping name**
· **DOT, ADR** Printing ink

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· **IMDG, IATA**	PRINTING INK
· **Transport hazard class(es)**	
· **DOT**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **ADR, IMDG, IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	36
· **EMS Number:**	F-E,S-D
· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 1210 PRINTING INK, 3, III

US

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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):**
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:**
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)**
None of the ingredients are listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients are listed.

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

96-48-0	gamma-Butyrolactone

· **Pennsylvania Hazardous Substances List**

96-48-0	gamma-Butyrolactone

· **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**

GHS02 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Solvent naphtha (petroleum), light arom.
Phenoxy Resin
gamma-Butyrolactone
Silicone Compound
· **Hazard statements**
H226 Flammable liquid and vapor.

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H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H402 Harmful to aquatic life.
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.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
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.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **Other regulations, limitations and prohibitive regulations**
RoHS 2 2011/65/EU along with EU Directive 2022/19/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.**

Registration, Evaluation and Authorization of Chemicals (REACH) & Substances of Very High Concern (SVHC): This product does not contain substances on the SVHC list.

· **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

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· **Contact:** Mr. Cole

· **Revision History:** New SDS **05/01/2017**
· **Date of preparation / last revision** 05/16/2017 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)
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
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
Skin Sens. 1A: Skin sensitisation – Category 1A
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1B: Carcinogenicity – Category 1B
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Asp. Tox. 1: Aspiration hazard – Category 1
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3