Safety Data Sheet

Date: 8/6/2019
Product Number: 51-0010-01 Revision: B
Product Name: Ink, Invisible UV Read

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) 2015/830

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Product Name: Ink, Invisible UV Read
Product Code: 51-0010-01

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product Use: Printing ink for use in BestCode CIJ

1.3 Details of the supplier of the safety data sheet

BestCode
3034 SE Loop 820
Fort Worth, TX 76140
817-349-8555

For further information, please contact Customer Service:

Customer Service: 817-349-8555
Email: Info@Bestcode.co

1.4 Emergency telephone number

Emergency Contact:		Local Poison Information Center
Chem Tel. Inc.	Toll Free	800-255-3924
	International	813-248-0585

Section 2: Hazards identification

2.1 Classification of the mixture in accordance with Article 40 of Regulation (EC) No 1272/2008 GHS Rating:

Flammable Liquids, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Specific Target Organ Toxicity (single exposure), Category 3

2.2 Label elements

Signal word: Danger

Hazard statements:

H225 - Highly flammable liquid and vapor.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.

Precautionary statements:

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P230 - Keep wetted with ...
P240 - Ground/bond container and receiving equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P250 - Do not subject to grinding/shock/.../ friction.
P264 - Wash hands thoroughly after handling.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P303+361+353 - IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 - Call a POISON CENTER/doctor/... if you feel unwell.
P337+313 - If eye irritation persists, get medical advice/attention.
P370+378 - In case of fire, use carbon dioxide, dry chemical powder or appropriate foam to extinguish.
P370+380 - In case of fire, evacuate area.
P372 - Explosion risk in case of fire.
P373 - DO NOT fight fire when fire reaches explosives.
P403+235 - Store in cool/well-ventilated place.
P403+233 - Store container tightly closed in well-ventilated place.
P405 - Store locked up.
P501 - Dispose of contents/container to in accordance with local regulations

2.3 Other Hazards

Chronic:
Chronic inhalation may cause effects similar to those of acute inhalation. Prolonged or repeated skin contact may cause defatting and dermatitis. Animal studies have reported that fetal effects/abnormalities may occur when maternal toxicity is seen. Chronic overexposure to vapors may cause lung damage. Animals exposed to 4300 ppm (mice) and 2000 ppm (guinea pig), 6 hours/day for 7 days developed minor blood changes & loss of appetite. There was no indication of liver or kidney injury. Rabbits exposed to 16000 mg/m3 (4440 ppm), 1 hour/day for 40 days developed secondary

anemia (decreased number of red blood cells), decreased hemoglobin levels, increased numbers of macrophages, congestion and fatty degeneration of various organs, and enlargement of the spleen. A reviewer suggested that the organ damage may have been due to impurities present in the ethyl.

Inhalation:
Causes respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness. May cause central nervous system effects such as nausea and headache. Neurobehavioural effects of exposure to MEK (200 ppm for 4 hrs) were studied with 137 volunteers. There were no statistically significant effects observed in biochemical, psychomotor, sensorimotor and psychological tests. May cause respiratory tract irritation. Inhalation of high concentrations may cause narcotic effects. May be harmful if inhaled. Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation.

Skin Contact:
May be absorbed through the skin in harmful amounts. Repeated or prolonged exposure may cause drying and cracking of the skin. Only one human case of skin sensitization was located. Negative results were obtained in an animal test; MEK did not produce skin sensitization in the mouse ear thickness test. May cause skin irritation. The majority of human studies have demonstrated that ethyl acetate does not cause an allergic response on human skin. However, there is one case report of a woman developing a skin allergy to ethyl acetate. May cause irritation with pain and stinging, especially if the skin is abraded. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. May be absorbed through intact skin. Dermal absorption has been considered toxicologically insignificant. The cases of deep coma associated with skin contact are thought to be a consequence of gross isopropanol vapor inhalation in rooms with inadequate ventilation, rather than being attributable to percutaneous absorption of isopropanol per se.

Eye Contact:
Causes eye irritation. Vapors may cause eye irritation. Animal evidence suggests that MEK is a moderate to severe eye irritant. Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause transient corneal injury. In the eyes of a rabbit, 0.1 ml of a rabbit, 0.1 ml of 70% isopropyl alcohol caused conjunctivitis, isopropyl alcohol caused conjunctivitis, iritis, and corneal opacity.

Ingestion:
May cause irritation of the digestive tract. Possible aspiration hazard. May cause central nervous system depression. Animal evidence suggests that MEK can be aspirated (inhaled) into the lungs during ingestion or vomiting. Ingestion of large amounts may cause central nervous system depression. May cause headache, nausea, fatigue, and dizziness. These effects may be caused in part by ethanol which is released when ethyl acetate is broken down in the body. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. The

probable oral lethal dose in humans is 240 ml (2696 mg/kg), but ingestion of only 20 ml (224 mg/kg) has, but in gestion of only 20 ml (224 mg/kg) has caused poisoning.

Section 3: Composition/information on ingredients

3.1 Substances:

3.2 Mixtures:

CAS #	EC #	Hazardous components / REACH Registration No.	Concentration	GHS Classification
78-93-3	201-159-0	Methyl Ethyl Ketone	60.0 – 90.0%	Flam. Liq. 2: H225; Eye Irrit. 2: H319; STOT SE 3: H336; EUH066
9004-70-0	NA	Nitrocellulose	5.0 -15.0 %	Explosive 1.1: H201 STOT (SE) 3: H335 H336
141-78-6	205-500-4 607-022-00-5	Acetic acid, ethyl ester	1.0 -5.0 %	Flam. Liq. 2: H225 Eye Damage 2: H319 STOT (SE) 3: H335 H336 EUH066
67-63-0	200-661-7 603-117-00-0	Isopropyl alcohol	1.0 -5.0 %	Flam. Liq. 2: H225 Eye Damage 2: H319 STOT (SE) 3: H335 H336

Section 4: First Aid Measures

4.1 Description of first aid measures

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Remove victim to fresh air. If not breathing give artificial respiration.

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid. In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse. Flush with copious amounts of water for at least 15 minutes.
Call a physician.

Ingestion: Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward. Wash out mouth with water provided person is conscious. Call a physician. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Get medical aid.

4.2 Most Important symptoms and effects, both acute and delayed

Prolonged exposure can cause: Nausea. Headache. Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Narcotic effect.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to doctor: Treat symptomatically and supportively. Urine acetone test may be helpful in diagnosis. Hemodialysis should be considered in severe intoxication.

Section 5: Fire Fighting Measures

5.1 Extinguishing media

In case of fire, use carbon dioxide, dry chemical powder or appropriate foam. Water may be ineffective because it will not cool material below its flash point. For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Water may be ineffective. Use water spray, alcohol foam, CO2, dry chemical. Do NOT use straight streams of water. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.

5.2 Special hazards arising from the substance or mixture

Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

Flammable Liquid. Emits toxic fumes under fire conditions. Dry material is an explosive.

5.3 Advice for firefighters

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes

Use water spray to cool fire-exposed containers. Vapors may form explosive mixtures with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. May form explosive peroxides

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Evacuate area

6.1.2 For emergency responders

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Shut off all sources of ignition. Use nonsparking tools.

6.2 Environmental Precautions

Advise local authorities if large spills cannot be contained. Do not allow product to enter drains. Prevent further spillage if safe.

6.3 Methods and material for containment and cleaning up

6.3.1 For Containment:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

6.3.2 Clean up and disposal of spill:

Do not attempt to sweep up dry material. Dampen with water prior to sweeping or shoveling. Immediately soak spilled material with water and remove to covered metal containers. Add water to containers. Do not allow material to become dry. Avoid runoff into storm sewers and ditches which

lead to waterways. Use only non-sparking tools and equipment. Use water spray to dilute spill to a non-flammable mixture. A vapor suppressing foam may be used to reduce vapors.

Section 7: Handling and storage

7.1 Precautions for safe handling

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Avoid breathing vapor. User Exposure: Do not get in eyes, on skin, on clothing. Do not breathe vapor.

Explosion: Dry material is an explosive. Container explosion may occur under fire conditions. Avoid breathing dust, mist, or vapor. Take precautionary measures against static discharges. Do not allow to evaporate to near dryness.

7.2 Conditions for safe storage, including any compatibilities

Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep container closed. Keep away from heat, sparks, and open flame. Store away from heat and direct sunlight.

Incompatible Materials: Avoid all contact with strong acids and strong bases, Oxidizing agents, Amines.

Do not allow material to become dry. Store in a tightly closed container. Keep away from heat, sparks and flame. Do not store in direct sunlight. Keep from contact with oxidizing materials. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation. Store protected from moisture. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred, and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.

7.3 Specific end use(s)

Fluid delivery to BestCode Series 8 CIJ. Follow safety instructions outlined in 7.1 & 7.2 while handling. Observe warnings provided with BestCode Series 8 CIJ system when installing and handling fluids.

Section 8: Exposure control/personal protection

8.1 Control parameters

CAS #	Hazardous components	ACGIH TLV	Australia	Austria
78-93-3	Methyl Ethyl Ketone	TLV: 200 ppm STEL: 300 ppm	TWA: 295 mg/m3 (100 ppm) STEL: 590 mg/m3 (200 ppm)	TWA: 445 mg/m3 (150 ppm) STEL: 890 mg/m3 (300 ppm)
141-78-6	Acetic acid, ethyl ester	TLV: 400 ppm	TWA: 1050 mg/m3 (300 ppm) STEL: 2100 mg/m3 (600 ppm)	TWA: 720 mg/m3 (200 ppm) STEL: 1440 mg/m3 (400 ppm)
67-63-0	Isopropyl alcohol	TLV: 200 ppm STEL: 400 ppm	TWA: 500 mg/m3 (200 ppm) STEL: 2000 mg/m3 (800 ppm)	TWA: 983 mg/m3 (400 ppm) STEL: 1230 mg/m3 (500 ppm)

CAS #	Hazardous components	Belgium OEL	California, USA	Ontario, CA
78-93-3	Methyl Ethyl Ketone	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm)	TWA: 590 mg/m3 (200 ppm) STEL: 885 mg/m3 (300 ppm)	TWA: 200 ppm STEL: 300 ppm
141-78-6	Acetic acid, ethyl ester	TWA: 1461 mg/m3 (400 ppm)	TWA: 1400 mg/m3 (400 ppm)	TWA: 400 ppm
67-63-0	Isopropyl alcohol	TWA: 500 mg/m3 (200 ppm) STEL: 1000 mg/m3 (400 ppm)	TWA: 980 mg/m3 (400 ppm) STEL: 1225 mg/m3 (500 ppm)	TWA: 200 ppm STEL: 400 ppm

CAS #	Hazardous components	China	Québec, CA	German AGS
78-93-3	Methyl Ethyl Ketone	TWA: 300 mg/m3 STEL: 600 mg/m3 (15 min)	TWA: 150 mg/m3 (50 ppm) STEL: 300 mg/m3 (100 ppm)	TWA: 600 mg/m3 (200 ppm) STEL: 600 mg/m3 (200 ppm) (15 min)
141-78-6	Acetic acid, ethyl ester	TWA: 200 mg/m3 STEL: 300 mg/m3 (15 min)	TWA: 1440 mg/m3 (400 ppm)	TWA: 1500 mg/m3 (400 ppm) STEL: 3000 mg/m3 (800 ppm) (15 min)
67-63-0	Isopropyl alcohol	TWA: 350 mg/m3 STEL: 700 mg/m3 (15 min)	TWA: 983 mg/m3 (400 ppm)	TWA: 500 mg/m3 (200 ppm)

			STEL: 1230 mg/m3 (500 ppm)	STEL: 1000 mg/m3 (400 ppm) (15 min)

CAS #	Hazardous components	Germany MAK/TRK	Denmark OEL	Spain OEL
78-93-3	Methyl Ethyl Ketone	TWA: 295 mg/m3 (100 ppm) STEL: 600 mg/m3 (200 ppm) (30min) (4x)	TWA: 145 mg/m3 (50 ppm) STEL: 290 mg/m3 (100 ppm)	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm)
141-78-6	Acetic acid, ethyl ester	TWA: 1050 mg/m3 (300 ppm) STEL: 2100 mg/m3 (600 ppm) (5min) (8x)	TWA: 540 mg/m3 (150 ppm) STEL: 1080 mg/m3 (300 ppm)	TWA: 1460 mg/m3 (400 ppm)
67-63-0	Isopropyl alcohol	TWA: 500 mg/m3 (200 ppm) STEL: 2000 mg/m3 (15/30min)(4x) (800 ppm (15/30min) (4x))	TWA: 500 mg/m3 (200 ppm) STEL: 980 mg/m3 (400 ppm)	TWA: 500 mg/m3 (200 ppm) STEL: 1000 mg/m3 (400 ppm)

CAS #	Hazardous components	Europe	Finland OEL	France VL
78-93-3	Methyl Ethyl Ketone	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm)	STEL: 300 mg/m3 (100 ppm) (15 min)	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm)
141-78-6	Acetic acid, ethyl ester		TWA: 1100 mg/m3 (300 ppm) STEL: 1800 mg/m3 (500 ppm) (15 min)	TWA: 1400 mg/m3 (400 ppm)
67-63-0	Isopropyl alcohol		TWA: 500 mg/m3 (200 ppm) STEL: 620 mg/m3 (250 ppm) (15 min)	STEL: 980 mg/m3 (400 ppm)

CAS #	Hazardous components	Hungary OEL	Ireland OEL	Italy OEL
78-93-3	Methyl Ethyl Ketone	TWA: 600 mg/m3 STEL: 900 mg/m3	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm) (15 min)	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm)

141-78-6	Acetic acid, ethyl ester	TWA: 1400 mg/m3 STEL: 1400 mg/m3	TWA: 200 ppm STEL: 400 ppm (15 min)	
67-63-0	Isopropyl alcohol	TWA: 500 mg/m3 STEL: 2000 mg/m3	TWA: 200 ppm STEL: 400 ppm (15 min)	

CAS #	Hazardous components	South Korea	Latvia OEL	Mexico OEL
78-93-3	Methyl Ethyl Ketone	TWA: 590 mg/m3 (200 ppm) STEL: 885 mg/m3 (300 ppm)	TWA: 200 mg/m3 (67 ppm) STEL: 900 mg/m3 (300 ppm) (15 min)	TWA: 590 mg/m3 (200 ppm) STEL: 885 mg/m3 (300 ppm)
141-78-6	Acetic acid, ethyl ester	TWA: 1400 mg/m3 (400 ppm)	TWA: 200 mg/m3	TWA: 1400 mg/m3 (400 ppm) STEL: ()
67-63-0	Isopropyl alcohol	TWA: 480 mg/m3 (200 ppm) STEL: 980 mg/m3 (400 ppm)	TWA: 350 mg/m3 STEL: 600 mg/m3 (15 min)	TWA: 980 mg/m3 (400 ppm) STEL: 1225 mg/m3 (500 ppm)

CAS #	Hazardous components	Malaysia OEL	NIOSH	Netherlands OEL
78-93-3	Methyl Ethyl Ketone	TWA: 590 mg/m3 (200 ppm)	TWA: 200 ppm STEL: 300 ppm	TWA: 590 mg/m3 STEL: 900 mg/m3
141-78-6	Acetic acid, ethyl ester	TWA: 1440 mg/m3 (400 ppm)	TWA: 1400 mg/m3 (400 ppm)	
67-63-0	Isopropyl alcohol	TWA: 983 mg/m3 (400 ppm)	TWA: 980 mg/m3 (400 ppm) STEL: 1225 mg/m3 (500 ppm)	

CAS #	Hazardous components	New Zealand	OSHA PELs	Poland
78-93-3	Methyl Ethyl Ketone	TWA: 445 mg/m3 (150 ppm) STEL: 890 mg/m3 (300 ppm)	PEL: 200 ppm	TWA: 450 mg/m3 STEL: 900 mg/m3
141-78-6	Acetic acid, ethyl ester	TWA: 720 mg/m3 (200 ppm)	PEL: 400 ppm	TWA: 200 mg/m3 STEL: 600 mg/m3
67-63-0	Isopropyl alcohol	TWA: 983 mg/m3 (400 ppm) STEL: 1230 mg/m3 (500 ppm)	PEL: 400 ppm	TWA: 900 mg/m3 STEL: 1200 mg/m3

CAS #	Hazardous components	Sweden OEL	Singapore	Britain EH40
78-93-3	Methyl Ethyl Ketone	TWA: 150 mg/m3 (50 ppm) STEL: 300 mg/m3 (100 ppm) (15 min)	TWA: 590 mg/m3 (200 ppm) STEL: 885 mg/m3 (300 ppm)	TWA: 600 mg/m3 (200 ppm) STEL: 899 mg/m3 (300 ppm)
141-78-6	Acetic acid, ethyl ester	TWA: 500 mg/m3 (150 ppm) STEL: 1100 mg/m3 (300 ppm) (15 min)	TWA: 1440 mg/m3 (400 ppm)	TWA: (200 ppm) STEL: (400 ppm)
67-63-0	Isopropyl alcohol	TWA: 350 mg/m3 (150 ppm) STEL: 600 mg/m3 (250 ppm) (15 min)	TWA: 983 mg/m3 (400 ppm) STEL: 1230 mg/m3 (500 ppm)	TWA: 999 mg/m3 (400 ppm) STEL: 1250 mg/m3 (500 ppm)

CAS #	Hazardous components	Switzerland OEL	Japan OEL	
78-93-3	Methyl Ethyl Ketone			
141-78-6	Acetic acid, ethyl ester	TWA: 1400 mg/m3 (400 ppm) STEL: 2800 mg/m3 (800 ppm)	TWA: 400 ppm	
67-63-0	Isopropyl alcohol	TWA: 500 mg/m3 (200 ppm) STEL: 1000 mg/m3 (400 ppm)		

8.2 Exposure controls:

8.2.1 Appropriate engineering controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design. Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels. Use explosion-proof ventilation equipment.

8.2.2 Individual protection measures, such as personal protective equipment

Wear appropriate protective clothing to prevent skin exposure.

Eye/Face protection: Wear chemical splash goggles. Chemical safety goggles.

Skin protection: Wear appropriate protective gloves to prevent skin exposure. Rubber gloves. Wear appropriate gloves to prevent skin exposure.

Respiratory protection: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Hygienic Practices: DO NOT SMOKE IN WORK AREA! Promptly remove contaminated clothing. Wash immediately if skin becomes contaminated. Do not eat or drink in work area while using this product. Wash thoroughly at the end of the workday, before eating and using the restroom.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Clear Liquid (Upon aging, clear or colorless fluids may develop a slight yellow tint which will not affect the product performance).		
Odor:	Solvent	**Odor threshold:**	No data available
pH:	No data available	**Melting point:**	-88.00 C - -83.00 C
Boiling range:	77.00 C - 83.00 C	**Flash point:**	-7°C
Evaporation rate:	4.4 (BuAC=1)	**Upper Explosive Limit:**	No data available
		Lower Explosive Limit:	No data available
Flammability:	No data available	**Vapor Pressure:**	~ 80 MM_HG at 20.0 C
Vapor density:	> Air	**Relative Density:**	0.857 (H2O = 1 @ 20 °C)
Solubility(ies):	Miscible	**Partition coefficient n-octanol/water:**	No data available
Auto-ignition temperature:	350.00 C	**Decomposition temperature:**	No data available
Viscosity:	No data available		No data available
Explosive properties:	< 80.0% Volatile by volume.		
Oxidizing properties:	No data available		

9.2 Other information:

Miscibility:	No data available	**VOC:**	No data available

Section 10: Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Will not occur

10.4 Conditions to avoid:

Ignition sources, Excess heat, May be shock-sensitive if dry. Moisture, attacks some plastics, rubber, and coatings. Light.

10.5 Incompatible materials:

Strong oxidizing agents, Strong acids, 2-propanol, Oxidizing agents, acids, Bases, Acid anhydrides, Halogens, Strong bases, Amines, Ammonia, ethylene oxide, isocyanates, acetaldehyde, chlorine, phosgene, Attacks some forms of plastics, rubbers, and coatings. aluminum at high temperatures.

10.6 Hazardous decomposition products

Carbon monoxide, Carbon dioxide, Nitrogen oxides, methane. Aldehydes, carboxylic acids, Hydrogen cyanide, ethyl alcohol.

Section 11: Toxicological information

11.1 Information on Toxicological effects

Acute toxicity:

Acute toxicity, LD50, Intraperitoneal, Mouse, 616.0 MG/KG.
Result:
Lungs, Thorax, or Respiration: Sputum.
Biochemical: Metabolism (Intermediary): Other proteins.
Biochemical: Metabolism (intermediary): Effect on inflammation or mediation of inflammation.
- Shell Chemical Company. Unpublished Report., Vol/p/yr: -,6, 1961

Acute toxicity, LD50, Skin, Species: Rabbit, 6480. MG/KG.
Result:
Lungs, Thorax, or Respiration: Other changes.
Biochemical: Metabolism (intermediary): Effect on inflammation or mediation of inflammation.
- Shell Chemical Company., Vol/p/yr: MSDS-5390-,

Acute toxicity, LC50, Inhalation, Mouse, 32.00 MG/M3.
Result:
Brain and Coverings: Other degenerative changes.
Biochemical: Metabolism (intermediary): Effect on inflammation or mediation of inflammation.

Skin Contact: Causes skin irritation. May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

Germ cell mutagenicity: No Data Available

Carcinogenicity:
CAS# 78-93-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 141-78-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 67-63-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Reproductive toxicity: No data available

STOT-single exposure: No data available

STOT-repeated exposure: No data available

Aspiration hazard No data available

11.1.1 Hazard Class information:

No data available

11.1.2 Mixture toxicity:

No data available

11.1.3 Critical studies:

No data available

11.1.4 Non-compliance hazard class:

No data available

11.1.5 Information on likely routes of exposure:

Kidneys. Liver. Cardiovascular system. Gastrointestinal System. Nerves.

11.1.6 Symptoms related to the physical, chemical and toxicological characteristics:

No data available

11.1.7 Delayed and immediate effects as well as chronic effects from short and long-term exposure:

No data available

11.1.8 Interactive effects:

No data available

11.1.9 Absence of specific data:

No data available

11.1.10 Mixtures:

No data available

11.1.11 Mixture vs Substance information:

No data available

11.1.12 Other information:

No data available

Section 12: Ecological information

12.1 Toxicity:

Environmental: Substance evaporates in water with T1/2= 3D (rivers) to 12D (lakes). Substance is not expected to bioconcentrate in marine life. Physical: Substance photodegrades in air with T1/2 = 2.3

days. Oxidizes rapidly by photo-chemical reactions in air. Readily biodegradable meeting the 10 day window criterion. Not expected to bioaccumulate significantly.

Terrestrial: Expected to have high mobility in soil. Volatilization of ethyl acetate from moist soil surfaces is expected to be important. Aquatic: Not expected to adsorb into suspended solids or sediments.

Atmospheric: Expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase ethyl acetate is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 10 days.

Physical: Substance biodegrades at a high rate with little bioconcentration.
Ecotoxicity: Fish: Fathead Minnow: 1000 ppm; 96h; LC50Daphnia: 1000 ppm; 96h;
LC50Fish: Gold orfe: 8970-9280 ppm; 48h; LC50 IPA has a high biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism, a low potential to affect the germination of some plants, a high potential to biodegrade (low persistence) with unacclimated microorganisms from activated sludge.

Physical: THOD: 2.40 g oxygen/gCOD: 2.23 g oxygen/gBOD-5: 1.19-1.72 g oxygen/g.

12.2 Persistence and degradability:

No data available

12.3 Bioaccumulative potential:

No data available

12.4 Mobility in soil:

No data available

12.5 Results of PBT and vPvB assessment:

No data available

12.6 Other adverse effects:

No data available

Section 13: Disposal considerations

13.1 Waste treatment methods:

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series:
CAS# 78-93-3: waste number U159 (Ignitable waste, Toxic waste). APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION.

Contact a licensed professional waste disposal service to dispose of this material.
Observe all federal, state, and local environmental regulations.
CAS# 141-78-6: waste number U112 (Ignitable waste). RCRA U-Series: None listed.

Section 14: Transport information

14.1	**UN number:**	1210
14.2	**Proper shipping name:**	
	US DOT:	Printing Ink
	Canadian TDG:	Printing ink, [flammable or] Printing ink related material [(including printing ink thinning or reducing compound), flammable]
	European ADR/RID:	Printing ink, [flammable or] Printing ink related material [(including printing ink thinning or reducing compound), flammable]
	IMDG/IMO:	Printing ink, [flammable or] Printing ink related material [(including printing ink thinning or reducing compound), flammable]
	ICAO/IATA:	Printing ink, [flammable or] Printing ink related material [(including printing ink thinning or reducing compound), flammable]
14.3	**Transport hazard class(es) :**	3 - FLAMMABLE LIQUID
14.4	**Packing group:**	II
14.5	**Environmental hazards:**	N/A
14.6	**Special precautions for user:**	N/A
14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code:**	
	N/A	

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists				
CAS #	**Hazardous components**	**S. 302 (EHS)**	**S. 304 RQ**	**S. 313 (TRI)**
78-93-3	Methyl Ethyl Ketone	No	Yes 5000LB	No
9004-70-0	Nitrocellulose	No	No	No
141-78-6	Acetic acid, ethyl ester	No	Yes 5000LB	No
67-63-0	Isopropyl alcohol	No	No	Yes

CAS #	Hazardous components	Canadian NPRI	Canadian Toxic	Canadian DSL
78-93-3	Methyl Ethyl Ketone	Yes	No	Yes
9004-70-0	Nitrocellulose	No	No	Yes
141-78-6	Acetic acid, ethyl ester	Yes	No	Yes
67-63-0	Isopropyl alcohol	Yes	No	Yes

CAS #	Hazardous components	CAA HAP, ODC	CWA NPDES	TSCA
78-93-3	Methyl Ethyl Ketone	No	No	Yes - Inv
9004-70-0	Nitrocellulose	No	No	Yes - Inv
141-78-6	Acetic acid, ethyl ester	No	No	Yes - Inv
67-63-0	Isopropyl alcohol	No	No	Yes - Inv

CAS #	Hazardous components	CA Prop 65	Mexico INSQ	Australia ICS
78-93-3	Methyl Ethyl Ketone	No	Yes - 1193	Listed
9004-70-0	Nitrocellulose	No	Yes	Yes
141-78-6	Acetic acid, ethyl ester	No	Yes - 1173	Yes
67-63-0	Isopropyl alcohol	No	Yes - 1219	Listed

CAS #	Hazardous components	New Zealand IOC	China IECSC	Japan ENCS
78-93-3	Methyl Ethyl Ketone	Listed	Listed	Yes - 2-542
9004-70-0	Nitrocellulose	Yes	Yes	Yes - 8-176
141-78-6	Acetic acid, ethyl ester	Yes	Yes	Yes - 2-726
67-63-0	Isopropyl alcohol	Listed	Listed	Yes - 2-207

CAS #	Hazardous components	Japan ISHL	Korea ECL	Philippines
78-93-3	Methyl Ethyl Ketone	Listed	Yes KE-24094	Listed
9004-70-0	Nitrocellulose	No	Yes KE-25980	Listed
141-78-6	Acetic acid, ethyl ester	No	Yes KE-00047	Listed
67-63-0	Isopropyl alcohol	Yes - 2-(8)-319	Yes KE-29363	Listed

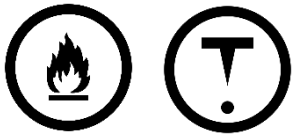
CAS #	Hazardous components	Taiwan TCSCA	Singapore HSL	Israel HSL:
78-93-3	Methyl Ethyl Ketone	Listed	No	No
9004-70-0	Nitrocellulose	Listed	No	No
141-78-6	Acetic acid, ethyl ester	Listed	No	No
67-63-0	Isopropyl alcohol	Listed	No	Yes - Cat

CAS #	Hazardous components	Germany WHCS	Switzerland Giftliste 1	Switzerland INNS
78-93-3	Methyl Ethyl Ketone	Yes – 150	Yes G-2429	No
9004-70-0	Nitrocellulose	No	Yes G-8365	No
141-78-6	Acetic acid, ethyl ester	Yes – 95	Yes G-1157	No
67-63-0	Isopropyl alcohol	Yes – 135	Yes G-1712	No

CAS #	Hazardous components	REACH	Kyoto GHG	Rotterdam
78-93-3	Methyl Ethyl Ketone	Yes - (R), (P)	No	No
9004-70-0	Nitrocellulose	Yes – (P)	No	No
141-78-6	Acetic acid, ethyl ester	Yes - (R), (P)	No	No
67-63-0	Isopropyl alcohol	Yes - (R), (P)	No	No

CAS #	Hazardous components	Stockholm		
78-93-3	Methyl Ethyl Ketone	No		
9004-70-0	Nitrocellulose	No		
141-78-6	Acetic acid, ethyl ester	No		
67-63-0	Isopropyl alcohol	No		

Canadian WHMIS Classification:



CLASS B, DIVISION 2: Flammable Liquids
CLASS D, DIVISION 2, SUBDIVISION B: Toxic Materials (Mutagenicity, skin sensitization, irritation, etc.)

15.2 Chemical safety assessment

Section 16: Other information

Revision Date: **8/6/2018**
Revision Notes: Revision B: Format updated to (EU) 2015/830.
Additional Information:

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