

Product Code(s) TSK318203

Product name Sigma

Issuing Date 18-Oct-2019

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Revision Number 4

Section 1: PRODUCT AND COMPANY IDENTIFICATION**Product identifier**

Product name Sigma

Other means of identification

Product Code(s) TSK318203

UN-No UN1210

Pure substance/mixture Mixture

Details of the supplier of the safety data sheet**Company Name**

Kao Collins Inc.
1201 Edison Drive
Cincinnati, OH 45216
PH: 513-948-9000
Info@kaocollins.com

Email address No information available

Emergency telephone number Chemtrec 1-800-424-9300

Emergency Telephone International Chemtrec: +1 703-527-3887

Recommended use of the chemical and restrictions on use

Recommended Use ink.

Uses advised against No information available.

Section 2: HAZARDS IDENTIFICATION**Emergency Overview**

Risk of serious damage to eyes

Vapors may cause drowsiness and dizziness

TOXIC TO AQUATIC ORGANISMS; MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames

Appearance Black

Physical state liquid.

Odor solvent

GHS - Classification

Flammable Liquids	Category 2
Acute toxicity - Oral	Category 5
Acute toxicity - Dermal	Category 5
Serious eye damage/eye irritation	Category 1
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Label Elements

**Signal word****Danger****Hazard statements**

H225 - Highly flammable liquid and vapor
H303 - May be harmful if swallowed
H313 - May be harmful in contact with skin
H318 - Causes serious eye damage
H336 - May cause drowsiness or dizziness
H360 - May damage fertility or the unborn child
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Avoid release to the environment
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
In case of fire: Use CO₂, dry chemical, or foam for extinction
Collect spillage

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Physical hazards

Highly flammable liquid and vapor Will be easily ignited by heat, sparks or flames Vapors may form explosive mixtures with air
Vapors can travel considerable distances to a source of ignition where they can ignite, flash back, or explode Runoff to sewer may create fire or explosion hazard Containers may explode when heated

Health hazards

Immediate Health Effects: If large quantities of this material are swallowed, call a physician immediately. If symptoms persist, call a physician. Risk of serious damage to eyes. Impairment of vision. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Chronic effects: Contains a known or suspected reproductive toxin.

Environmental Hazards

This material is a water pollutant. Keep out of drains, sewers, ditches and waterways. Minimize use of water to prevent environmental contamination Dangerous for the environment

Other hazards

Not applicable

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**Substance**

Not applicable

Mixture

Chemical name	CAS No	Weight-%
Ethyl alcohol 64-17-5	64-17-5	50 - 75
Propanol 71-23-8	71-23-8	1 - 25
Propylene glycol propyl ether 1569-01-3	1569-01-3	1 - 10
Isopropyl alcohol 67-63-0	67-63-0	1 - 5
Yellow Dye	-	0.1 - <1

*The exact percentage (concentration) of composition has been withheld as a trade secret

NOTE

Remaining components are either not hazardous or below threshold limits.

Section 4: FIRST AID MEASURES**Description of first aid measures****General advice**

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Immediate medical attention is required. If symptoms persist, call a physician.

Eye contact

If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing.

Skin Contact

Wash off immediately with plenty of water. Immediate medical attention is not required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Inhalation

Remove to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Move to fresh air in case of accidental inhalation of vapors.

Ingestion

Do NOT induce vomiting. Drink plenty of water. Immediate medical attention is not required. Rinse mouth. Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician.

Most important symptoms and effects, both acute and delayed**Symptoms**

No information available.

For emergency responders

Self-protection of the first aider Remove all sources of ignition. Use personal protective equipment as required.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media Use. Carbon dioxide (CO₂). Dry chemical. Water spray, fog or alcohol-resistant foam.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Keep product and empty container away from heat and sources of ignition.

Special protective actions for fire-fighters

Special protective equipment for firefighters Wear self contained breathing apparatus for fire fighting if necessary.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers. Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Soak up with inert absorbent material.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Handling Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. Use with local exhaust

ventilation. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray.

Hygiene Measures

When using do not eat or drink. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities**Storage**

Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place.

Incompatible materials

Strong oxidizing agents. Acids. Chlorinated compounds. Strong acids.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	China	ACGIH TLV
Ethyl alcohol - 64-17-5	-	1000 ppm STEL
Propanol - 71-23-8	TWA: 200 mg/m ³ STEL: 300 mg/m ³	TWA: 100 ppm
Isopropyl alcohol - 67-63-0	TWA: 350 mg/m ³ STEL: 700 mg/m ³	400 ppm STEL TWA: 200 ppm
Yellow Dye -	TWA: 0.05 mg/m ³ STEL: 0.15 mg/m ³	-

Legend

See section 16 for terms and abbreviations

Biological occupational exposure limits

No information available

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment**Respiratory protection**

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hand protection

For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

Eye/Face Protection

Tight sealing safety goggles. Face protection shield.

Skin and body protection

Antistatic boots. Wear fire/flame resistant/retardant clothing. For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn. Suitable protective clothing. Apron.

Environmental exposure controls

Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties**Physical state**

liquid

Appearance

Black

Color

No information available

Odor

solvent

Odor Threshold

No information available

Property**Values****Remarks • Method**

pH

No information available

Melting point / freezing point		Not applicable
Boiling point / boiling range	> 75 °C	Not applicable
Flash point	< 17 °C	Seta Closed Cup
Evaporation rate		No information available
Flammability (solid, gas)		No information available
Flammability Limit in Air		
Upper flammability limit:	11.5 (volume % in Air)	
Lower flammability limit:	1.8 (volume % in Air)	
Vapor pressure		No information available
Vapor density		No information available
Relative density	0.700 - 0.900	No information available
Water solubility		No information available
Solubility(ies)	partly miscible	No information available
Partition coefficient		No information available
Autoignition temperature		Not applicable
Decomposition temperature		No information available
Kinematic viscosity		No information available
Dynamic viscosity		
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

VOC content	No information available
Bulk density	No information available

Section 10: STABILITY AND REACTIVITY**Reactivity**

no data available

Chemical stability

Stable under recommended storage conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization	Hazardous polymerization does not occur.
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Conditions to avoid

Heating in air. Heat, flames and sparks.

Incompatible materials

Strong oxidizing agents. Acids. Chlorinated compounds. Strong acids.

Hazardous Decomposition Products

Carbon oxides.

Section 11: TOXICOLOGICAL INFORMATION**Acute toxicity****Information on likely routes of exposure**

Product Information	The product has not been tested.
Inhalation	Avoid breathing vapors or mists. May cause drowsiness and dizziness.

Eye contact	Avoid contact with eyes. Causes serious eye damage.
IF ON SKIN	Avoid contact with skin. May cause irritation. May cause sensitization by skin contact.
Ingestion	Do NOT taste or swallow. May be harmful if swallowed.

Numerical measures of toxicity - Product Information**Unknown acute toxicity**

8.8815 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
 68.444 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
 96.8065 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
 78.8065 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
 34.3065 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	4,421.80 mg/kg
ATEmix (dermal)	4,346.10 mg/kg
ATEmix (inhalation-dust/mist)	126.80 mg/l
ATEmix (inhalation-vapor)	39.24 mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Ethyl alcohol	= 7060 mg/kg (Rat)	-	= 124.7 mg/L (Rat) 4 h
Propanol	= 1870 mg/kg (Rat)	= 4049 mg/kg (Rabbit)	> 13548 ppm (Rat) 4 h
Propylene glycol propyl ether	= 2490 mg/kg (Rat) = 2504 mg/kg (Rat)	= 3550 mg/kg (Rabbit)	-
Isopropyl alcohol	= 1870 mg/kg (Rat)	= 4059 mg/kg (Rabbit)	= 72600 mg/m ³ (Rat) 4 h

See section 16 for terms and abbreviations

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

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	Risk of serious damage to eyes. Irritating to eyes.
Sensitization	May cause an allergic skin reaction.
Mutagenic effects	No information available.
Carcinogenic effects	This product contains Ethanol which is classified as a possible carcinogen when ingested in the form of an alcoholic beverage. This is irrelevant as this product is used for ink jet ink applications not an alcoholic beverage.

Chemical name	China	IARC
Ethyl alcohol	-	Group 1
Isopropyl alcohol	-	Group 3
Yellow Dye	-	Group 3

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans Group 2B - Possibly Carcinogenic to Humans Group 2A - Probably Carcinogenic to Humans

Reproductive toxicity	May cause harm to the unborn child. Possible risk of harm to the unborn child. May impair fertility. Possible risk of impaired fertility.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target organ effects	liver, blood, Eyes, Skin, Central Nervous System (CNS), blood, Reproductive System, Gastrointestinal tract (GI), kidney, hematopoietic system.
Aspiration hazard	No information available.

Section 12: ECOLOGICAL INFORMATION**Ecotoxicity**

8.8815 % of the mixture consists of component(s) of unknown hazards to the aquatic environment
 Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Toxicity to Fish	Crustacea
Ethyl alcohol	-	13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through	2: 48 h Daphnia magna mg/L EC50 Static 9268 - 14221: 48 h Daphnia

		12.0 - 16.0: 96 h <i>Oncorhynchus mykiss</i> mL/L LC50 static 100: 96 h <i>Pimephales promelas</i> mg/L LC50 static	magna mg/L LC50 10800: 24 h <i>Daphnia magna</i> mg/L EC50
Propanol	-	4480: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through	3339 - 3977: 48 h <i>Daphnia magna</i> mg/L EC50 Static 3642: 48 h <i>Daphnia magna</i> mg/L EC50
Propylene glycol propyl ether	-	100: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 static	-
Isopropyl alcohol	1000: 96 h <i>Desmodesmus subspicatus</i> mg/L EC50 1000: 72 h <i>Desmodesmus subspicatus</i> mg/L EC50	1400000: 96 h <i>Lepomis macrochirus</i> µg/L LC50 9640: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 11130: 96 h <i>Pimephales promelas</i> mg/L LC50 static	13299: 48 h <i>Daphnia magna</i> mg/L EC50

Persistence and degradability

No information available.

Bioaccumulative potential

No information available.

Mobility**Mobility in soil**

No information available.

No information available.

Chemical name	Partition coefficient
Ethyl alcohol	-0.32
Propanol	0.34
Isopropyl alcohol	0.05

Other adverse effects

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Section 13: DISPOSAL CONSIDERATIONS**Waste treatment methods****Waste from residues/unused products**

Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORTATION INFORMATION**IMDG/IMO**

Not regulated

Transport in bulk according to
Annex II of MARPOL and the IBC
Code

No information available

IATA

UN-No

UN1210

Proper shipping name

Printing Ink, Flammable

Hazard Class

3

Packing group

II

China

Not regulated

Section 15: REGULATORY INFORMATION

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

National Regulations

Law of the People's Republic of China on Prevention and Control of Occupational Diseases

Catalog of occupational hazard factors: Listed. Chemical hazards.

Catalog of occupational diseases: Listed. Occupational poisoning.

Chemical name	Category	Propanol	Chemical hazards	Isopropyl alcohol	Chemical hazards	Yellow Dye
Chemical hazards						

Regulations on the Control over Safety of Hazardous Chemicals

Inventory of hazardous chemicals

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed

Chemical name	Inventory of hazardous chemicals	Ethyl alcohol	Listed	Propanol	Listed	Isopropyl alcohol
Listed						

GB 18218-2009 Identification of major hazard installations for dangerous chemicals

Chemical name	Threshold quantity (T)	Ethyl alcohol	500
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List of hazardous chemicals under priority management

Not applicable

Regulations on Labor Protection in Workplaces Where Toxic Substances Are Used

Inventory of highly toxic goods

Not applicable

Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

List of toxic chemicals severely restricted for import and export in China

Not applicable

Measures for the Environmental Management of New Chemical Substances

IECSC

Complies

IECSC - China Inventory of Existing Chemical Substances

International Inventories

Chemical name	TSCA	DSL/NDSL	EINECS/ELINCS	ENCS	KECL	PICCS	AICS
Ethyl alcohol 64-17-5	X	X	X	X	X	X	X
Propanol 71-23-8	X	X	X	X	X	X	X
Propylene glycol propyl ether 1569-01-3	X	X	X	X	X	X	X
Isopropyl alcohol 67-63-0	X	X	X	X	X	X	X
Yellow Dye	X	X	X	X	X	X	X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: OTHER INFORMATION

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Revision note No information available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet