

SAFETY DATA SHEET

INKCUPS

Candymark Edible Ink**Candymark Black**

Inkcups requests that the users of this product study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should notify its employees, contractors and agents of the information in this MSDS and any product hazards and safety information.

Section 1. Identification

Product name : Candymark Edible Ink

Product code : Candymark Black

Use of the substance/mixture

Manufacture of pharmaceutical products and/or Manufacture of food products

Company : Inkcups Corp.
310 Andover St. Danvers,
MA
01923 USA
www.inkcups.com
E-mail: info@inkcups.com
Phone: (978) 646-8980

Emergency telephone number : US - 800-424-9300 International - +001-703-527-3887

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 1
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 2.8%

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
Causes severe skin burns and eye damage.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Wash hands thoroughly after handling.

Response : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. 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 physician.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

See Section 11 for more detailed information on health effects and symptoms.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
METHYL ISOBUTYL KETONE	30 - 50	108-10-1
PROPYLENE GLYCOL MONOMETHYL ETHER	10 - 30	107-98-2
CARBON BLACK	1 - 5	1333-86-4
AMMONIUM HYDROXIDE	0 - 1	1336-21-6

Any concentration shown as a range is to protect confidentiality.

Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Affected individual should remove contact lens, if present. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if symptoms occur.
- Skin contact** : In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. Get medical attention if irritation develops.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns.
- Ingestion** : May cause burns to mouth, throat and stomach.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Flammability of the product** : Highly flammable.
- Products of combustion** : No specific data.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions** : Keep unnecessary personnel away. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Use suitable protective equipment (section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Small spill : Absorb with an inert material and place in an appropriate waste disposal container.
Large spill : Use appropriate containment to avoid environmental contamination. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Contaminated absorbent material may pose the same hazard as the spilled product. Use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal.

Section 7. Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Do not reuse container.
- Storage** : Keep container tightly closed. Store in a dry, cool and well-ventilated area. Store away from incompatible materials (see Section 10). Store in accordance with local regulations.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
METHYL ISOBUTYL KETONE	<p>ACGIH TLV (United States, 3/2015). STEL: 75 ppm 15 minutes. TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2013). STEL: 300 mg/m³ 15 minutes. STEL: 75 ppm 15 minutes. TWA: 205 mg/m³ 10 hours. TWA: 50 ppm 10 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 410 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 300 mg/m³ 15 minutes. STEL: 75 ppm 15 minutes. TWA: 205 mg/m³ 8 hours. TWA: 50 ppm 8 hours.</p>
PROPYLENE GLYCOL MONOMETHYL ETHER	<p>ACGIH TLV (United States, 3/2015). STEL: 369 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 184 mg/m³ 8 hours. TWA: 50 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2013). STEL: 540 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 360 mg/m³ 10 hours. TWA: 100 ppm 10 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 540 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 360 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p>
CARBON BLACK	<p>ACGIH TLV (United States, 3/2015). TWA: 3 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>NIOSH REL (United States, 10/2013). TWA: 3.5 mg/m³ 10 hours. TWA: 0.1 mg of PAHs/cm³ 10 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 3.5 mg/m³ 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 3.5 mg/m³ 8 hours.</p>

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Section 8. Exposure controls/personal protection

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Values provided should not be construed as specifications. See product specification for additional information.

Physical state

: Liquid.

Flash point

: Closed cup: 5°C (41°F)

Boiling point

: Not available.

Odor

: Not available.

Odor threshold

: Not available.

pH

: Basic.

Melting point/freezing point

: May start to solidify at the following temperature: -26°C (-14.8°F) This is based on data for the following ingredient: ethyl lactate. Weighted average: -73.89°C (-101°F)

Evaporation rate

: Highest known value: 1.7 (4-methylpentan-2-one) Weighted average: 1.36 compared with butyl acetate

Flammability (solid, gas)

: Highly flammable.

Upper/lower flammability or explosive limits

: Greatest known range: Lower: 1.48% Upper: 13.74% (1-methoxy-2-propanol)

Vapor pressure

: Highest known value: 48 kPa (360 mm Hg) (at 20°C) (ammonia). Weighted average: 2.27 kPa (17.03 mm Hg) (at 20°C)

Vapor density

: Highest known value: 4.6 (Air = 1) (2-methoxy-1-methylethyl acetate). Weighted average: 3.53 (Air = 1)

Relative density

: Weighted average: 0.9 (Water = 1)

Solubility(ies)

: Not available.

Partition coefficient: n-octanol/water

: Not available.

Auto-ignition temperature

: Lowest known value: 270°C (518°F) (1-methoxy-2-propanol).

Decomposition temperature

: Not available.

Viscosity

: Dynamic: Highest known value: 1.7 cP (1-methoxy-2-propanol)
Kinematic: Highest known value: 1.13 cSt (2-methoxy-1-methylethyl acetate)

Explosive properties

: Not available.

Oxidizing properties

: Not available.

Section 10. Stability and reactivity

- Reactivity** : Not available.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials** : Reactive or incompatible with the following materials:
oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

<u>Ingredient name</u>	<u>CAS #</u>	<u>Result</u>	<u>Species</u>	<u>Dose</u>	<u>Exposure</u>
METHYL ISOBUTYL KETONE	108-10-1	LD50 Oral	Rat	2080 mg/kg	-
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2	LD50 Dermal	Rabbit	13 g/kg	-
CARBON BLACK	1333-86-4	LD50 Oral	Rat	6600 mg/kg	-
AMMONIUM HYDROXIDE	1336-21-6	LD50 Oral	Rat	>15400 mg/kg	-
				350 mg/kg	-

Chronic effects

<u>Ingredient name</u>	<u>ACGIH</u>	<u>IARC</u>	<u>EPA</u>	<u>NIOSH</u>	<u>NTP</u>	<u>OSHA</u>
METHYL ISOBUTYL KETONE	A3	2B	-	-	-	-
PROPYLENE GLYCOL MONOMETHYL ETHER	A4	-	-	-	-	-
CARBON BLACK	A3	2B	-	+	-	-

Additional information :

Not available.

Other toxic effects on humans

No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing.

Specific effects on humans

Mutagenicity / Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<u>Route</u>	<u>ATE value</u>
Oral	4402 mg/kg

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns.
- Ingestion** : May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.

Section 11. Toxicological information

- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
METHYL ISOBUTYL KETONE	Acute LC50 505000 to 514000 µg/l Fresh water Chronic NOEC mg/l Fresh water Chronic NOEC 168 mg/l Fresh water	Fish - Pimephales promelas Daphnia - Daphnia magna Fish - Pimephales promelas - Embryo	96 hours 21 days 33 days
CARBON BLACK	Acute EC50 37.563 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
AMMONIUM HYDROXIDE	Acute LC50 37 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours

Bioaccumulative potential





Product/ingredient name	LogP _{ow}	BCF	Potential
METHYL ISOBUTYL KETONE	1.9	-	low
PROPYLENE GLYCOL	<1	-	low
MONOMETHYL ETHER			

- Other adverse effects** : No known significant effects or critical hazards.

Section 13. Disposal considerations

- Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	ADN	IMDG	IATA
UN number	1210	1210	1210	Not available.
UN proper shipping name	Printing ink	Printing Ink	Printing Ink	Not available.
Transport hazard class(es)	3 	3 	3 	Not available. 
Packing group	II	II	II	-
Environmental hazards	No.	No.	No.	No.

Section 14. Transport information

Additional information	Reportable quantity 12104.1 lbs / 5495.3 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.			
-------------------------------	---	--	--	--

Section 15. Regulatory information

United States

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): Not determined.
SARA 302/304: No products were found.
SARA 311/312 Hazards identification: Not regulated.
Clean Water Act (CWA) 311: methyl methacrylate; toluene; ammonia
Clean Water Act (CWA) 307: toluene
Clean Air Act (CAA) 112 accidental release prevention: No products were found.

SARA 313

Form R - Reporting requirements

Supplier notification

Product name

: 4-methylpentan-2-one
 ammonia
 : 4-methylpentan-2-one
 ammonia

CAS number

108-10-1
 1336-21-6
 108-10-1
 1336-21-6

Concentration

30 - 50
 0 - 1
 30 - 50
 0 - 1

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

: **Connecticut Carcinogen Reporting**: This material is not listed.
Connecticut Hazardous Material Survey: This material is not listed.
Florida substances: This material is not listed.
Illinois Chemical Safety Act: This material is not listed.
Illinois Toxic Substances Disclosure to Employee Act: This material is not listed.
Louisiana Reporting: This material is not listed.
Louisiana Spill: This material is not listed.
Massachusetts Spill: This material is not listed.
Massachusetts Substances: This material is not listed.
Michigan Critical Material: This material is not listed.
Minnesota Hazardous Substances: This material is not listed.
New Jersey Hazardous Substances: This material is not listed.
New Jersey Spill: This material is not listed.
New Jersey Toxic Catastrophe Prevention Act: This material is not listed.
New York Acutely Hazardous Substances: This material is not listed.
New York Toxic Chemical Release Reporting: This material is not listed.
Pennsylvania RTK Hazardous Substances: This material is not listed.
Rhode Island Hazardous Substances: This material is not listed.

California Prop. 65

Ingredient name

Cancer

Reproductive

No significant risk level

Maximum acceptable dosage level

4-methylpentan-2-one
 carbon black, respirable powder
 toluene

Yes.
 Yes.
 No.

Yes.
 No.
 Yes.

No.
 No.
 No.

No.
 No.
 7000 µg/day (ingestion)
 13000 µg/day (inhalation)

Canada

WHMIS (Canada)

: Not controlled under WHMIS (Canada).

Section 15. Regulatory information

Canadian lists : CEPA Toxic substances: This material is not listed.
 Canadian ARET: This material is not listed.
 Canadian NPRI: This material is not listed.
 Alberta Designated Substances: This material is not listed.
 Ontario Designated Substances: This material is not listed.
 Quebec Designated Substances: This material is not listed.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. See Section 11 for more detailed information on health effects and symptoms.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	3
Physical hazards	1

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue : 10 May 2016

Date of previous issue : No previous validation

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

The information contained in this document is proprietary to Inkcups and may not be used or disseminated inappropriately.