

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : NARK2005 Duquenois-Levine Reagent
Product code : NARK2005

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Crime Scene Investigation

1.3. Supplier

SIRCHIE
100 Hunter Place
Youngsville, NC 27596 - USA
T 919-554-2244; 800-356-7311 - F 919-554-2266; 800-899-8181
<http://www.sirchie.com>

1.4. Emergency telephone number

Emergency number : 1.800.424.9300 (USA) +1-703-527-3887 (INTL)
CHEMTREC: 1.800.424.9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 1	H224	Extremely flammable liquid and vapour
Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled
Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Carcinogenicity Category 2	H351	Suspected of causing cancer (Inhalation, oral)
Specific target organ toxicity (repeated exposure) Category 2	H373	May cause damage to organs through prolonged or repeated exposure

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H224 - Extremely flammable liquid and vapour
H302+H332 - Harmful if swallowed or if inhaled
H314 - Causes severe skin burns and eye damage
H351 - Suspected of causing cancer (Inhalation, oral)
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P260 - Do not breathe mist, spray.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

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contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P330 - Rinse mouth.
P363 - Wash contaminated clothing before reuse.
P403+P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
chloroform	(CAS-No.) 67-66-3	> 41.58	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 STOT RE 2, H373
ethanol	(CAS-No.) 64-17-5	27.55	Flam. Liq. 2, H225
AQUA	(CAS-No.) 7732-18-5	18.27	Not classified
hydrochloric acid	(CAS-No.) 7647-01-0	10.73	Skin Corr. 1A, H314
acetaldehyde	(CAS-No.) 75-07-0	> 0.725	Flam. Liq. 1, H224 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335
4-hydroxy-3-methoxybenzaldehyde	(CAS-No.) 121-33-5	0.58	Eye Irrit. 2A, H319

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Carbon dioxide. Dry chemical powder. Foam. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : Flammable.
Explosion hazard : No data available on direct explosion hazard.
Reactivity : No data available.

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5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire.
Protection during firefighting : Do not attempt to take action without suitable protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Safety glasses (EN166). Gloves.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

acetaldehyde (75-07-0)

Not applicable

ethanol (64-17-5)

Not applicable

4-hydroxy-3-methoxybenzaldehyde (121-33-5)

Not applicable

hydrochloric acid (7647-01-0)

Not applicable

AQUA (7732-18-5)

Not applicable

chloroform (67-66-3)

Not applicable

8.2. Appropriate engineering controls

No additional information available

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8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses.

Hand protection:

Wear protective gloves.

Eye protection:

Chemical goggles or safety glasses

Respiratory protection:

Mist formation: aerosol mask with filter type P1

Personal protective equipment symbol(s):



Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear, colorless liquid.
Color	: Colorless
Odor	: Aromatic odour
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Soluble in water.
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

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10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Sparks.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Oral: Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Inhalation:dust,mist: Harmful if inhaled.

ATE US (oral)	1671.477 mg/kg body weight
ATE US (dust, mist)	1.203 mg/l/4h

acetaldehyde (75-07-0)	
LD50 dermal rabbit	3540 mg/kg (Rabbit, Dermal)
LC50 inhalation rat (mg/l)	24 mg/l (4 h, Rat, Inhalation)
LC50 inhalation rat (ppm)	13300 ppm (4 h, Rat, Inhalation)
ATE US (dermal)	3540 mg/kg body weight
ATE US (vapors)	24 mg/l/4h
ATE US (dust, mist)	24 mg/l/4h

ethanol (64-17-5)	
LD50 oral rat	10470 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 15800 mg/kg body weight (Rabbit, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	125 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s))

4-hydroxy-3-methoxybenzaldehyde (121-33-5)	
LD50 oral rat	3300 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
ATE US (oral)	3300 mg/kg body weight

chloroform (67-66-3)	
LD50 oral rat	695 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 908 mg/kg bodyweight; Rat; OECD 401: Acute Oral Toxicity; Experimental value; 1117 mg/kg bodyweight; Rat)
LD50 dermal rabbit	> 20000 mg/kg (Rabbit; No reliable data available; >3980 mg/kg bodyweight; Rabbit)
ATE US (oral)	695 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Eye damage, category 1, implicit
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Suspected of causing cancer (Inhalation, oral). (Based on available data, the classification criteria are not met)

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Additional information	Chloroform is a suspect carcinogen based on animal studies only. Studies on long term exposure to humans is inconclusive. Based on the amount and packaging of this product, there is no known risk of cancer.

ethanol (64-17-5)	
Additional information	Ethyl alcohol (200 Proof) has been shown to cause cancer in Human and Animals when ingested in volume over time. There is no link to cancer in limited exposure scenarios.

chloroform (67-66-3)	
IARC group	2B - Possibly carcinogenic to humans
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified

acetaldehyde (75-07-0)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

chloroform (67-66-3)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified
Viscosity, kinematic : No data available
Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

SECTION 12: Ecological information

12.1. Toxicity

acetaldehyde (75-07-0)	
LC50 fish 1	30.8 mg/l (96 h, Pimephales promelas, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	48.3 mg/l (48 h, Daphnia magna, Static system, Fresh water, Experimental value)
ErC50 (algae)	237 - 249 mg/l (5 day(s), Diatomeae, Static system, Fresh water, Experimental value)

ethanol (64-17-5)	
LC50 fish 1	15300 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)

4-hydroxy-3-methoxybenzaldehyde (121-33-5)	
LC50 fish 1	57 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)
EC50 Daphnia 1	36.79 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 (algae)	120 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

chloroform (67-66-3)	
LC50 fish 1	18.2 ppm (LC50; ASTM; 96 h; Oncorhynchus mykiss; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 2	152.5 mg/l (EC50; US EPA; 48 h; Daphnia magna; Static system; Salt water; Experimental value)

12.2. Persistence and degradability

NARK2005 Duquenois-Levine Reagent	
Persistence and degradability	Not established.

acetaldehyde (75-07-0)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	1.27 g O ₂ /g substance
ThOD	1.82 g O ₂ /g substance

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acetaldehyde (75-07-0)	
BOD (% of ThOD)	0.7
ethanol (64-17-5)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.8 - 0.967 g O ₂ /g substance
Chemical oxygen demand (COD)	1.7 g O ₂ /g substance
ThOD	2.1 g O ₂ /g substance
BOD (% of ThOD)	0.43
4-hydroxy-3-methoxybenzaldehyde (121-33-5)	
Persistence and degradability	Readily biodegradable in water.
hydrochloric acid (7647-01-0)	
Persistence and degradability	Biodegradability: not applicable.
chloroform (67-66-3)	
Persistence and degradability	Not readily biodegradable in water. Non degradable in the soil. Low potential for adsorption in soil.
ThOD	0.33 - 1.35 g O ₂ /g substance
BOD (% of ThOD)	0.015 - 0.06

12.3. Bioaccumulative potential

NARK2005 Duquenois-Levine Reagent	
Bioaccumulative potential	Not established.
acetaldehyde (75-07-0)	
Log Pow	0.63 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
ethanol (64-17-5)	
BCF fish 1	1 (Other, 72 h, Cyprinus carpio, Static system, Fresh water, Read-across)
Log Pow	-0.31 (Experimental value)
Bioaccumulative potential	Not bioaccumulative.
4-hydroxy-3-methoxybenzaldehyde (121-33-5)	
Log Pow	1.17 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
hydrochloric acid (7647-01-0)	
Bioaccumulative potential	Does not contain bioaccumulative component(s).
chloroform (67-66-3)	
BCF fish 2	1.4 - 4.7 (BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; 42 days; Cyprinus carpio; Flow-through system; Fresh water; Experimental value)
Log Pow	1.97 (Experimental value; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

acetaldehyde (75-07-0)	
Surface tension	0.021 N/m (20 °C)
Ecology - soil	No (test)data on mobility of the substance available.
ethanol (64-17-5)	
Surface tension	22.31 mN/m (20 °C, 100 %)
Log Koc	0.2 (log Koc, Experimental value)
Ecology - soil	Highly mobile in soil.
4-hydroxy-3-methoxybenzaldehyde (121-33-5)	
Log Koc	3.438 (log Koc, Experimental value)
Ecology - soil	Low potential for mobility in soil.
hydrochloric acid (7647-01-0)	
Ecology - soil	No (test)data on mobility of the components available. May be harmful to plant growth, blooming and fruit formation.

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chloroform (67-66-3)	
Surface tension	0.0271 N/m (20 °C)
Log Koc	Koc,Other; 86.7-367; Experimental value; log Koc; Other; 1.94-2.56; Experimental value
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3316 Chemical kits, 9, II
UN-No.(DOT) : UN3316
Proper Shipping Name (DOT) : Chemical kits
Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
Packing group (DOT) : II - Medium Danger
Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



DOT Packaging Non Bulk (49 CFR 173.xxx) : 161
DOT Packaging Bulk (49 CFR 173.xxx) : None
DOT Special Provisions (49 CFR 172.102) : 15 - This entry applies to Chemical kits and First aid kits containing one or more compatible items of hazardous materials in boxes, cases, etc. that are used for medical, analytical, diagnostic or testing purposes. For transportation by aircraft, materials forbidden for transportation by passenger aircraft or cargo aircraft may not be included in the kits. Chemical kits and first aid kits are excepted from the specification packaging requirements of this subchapter when packaged in combination packaging. Chemical kits and first aid kits are also excepted from the labeling and placarding requirements of this subchapter, except when offered for transportation or transported by air. Chemical and first aid kits may be transported in accordance with the consumer commodity and ORM exceptions in 173.156, provided they meet all required conditions. Kits that are carried on board transport vehicles for first aid or operating purposes are not subject to the requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx) : 161
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 10 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 10 kg
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not applicable

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Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION 16: Other information

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Data sources	: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Training advice	: Normal use of this product shall imply use in accordance with the instructions on the packaging. Keep in tightly closed container. Keep cool and dry. Avoid all ignition sources - heat, open flame, sparks. Avoid incompatible materials. Avoid dust creation and accumulation. Avoid inhalation and ingestion. Avoid contact with eyes. Wash thoroughly after handling.
Other information	: None.

Full text of H-phrases:

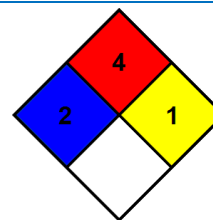
H224	Extremely flammable liquid and vapour
H225	Highly flammable liquid and vapour
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure

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- NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
- NFPA fire hazard : 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.
- NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



- Hazard Rating
- Health : 2 Moderate Hazard - Temporary or minor injury may occur
- Flammability : 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)
- Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.
- Personal protection : G
G - Safety glasses, Gloves, Vapor respirator

SDS US (GHS HazCom 2012)

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes.