SAFETY DATA SHEET

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

1.1 Product identifiers

Product name	Cap A (Acetic Anhydride in THF, 1:9)
CAS number	108-24-7, 109-99-9
Synonyms	Capping Solution

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

Identified uses	Laboratory Chemicals

1.3 Details of the supplier of the safety data sheet

Company	Lab Alley, LLC 12501 Pauls Valley Road Austin, Texas 78737 U.S.A.
Telephone	512-668-9918
Fax	512-886-4008

1.4 Emergency telephone

Emergency Phone #	US & Canada: 1-800-535-5053	INFOTRAC
	International 1-352-323-3500	INFOTRAC

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable Liquids: GHS Category 2
Acute Toxicity, Inhalation: GHS Category 3
Acute Toxicity, Oral: GHS Category 4
Skin Corrosion: GHS Category 1B
Serious Eye Damage: GHS Category 1
Specific Target Organ Exposure, single exposure: GHS Category 3, Respiratory System

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger!

Hazard statements:
H225 – Highly flammable liquid and vapor.
H241 – Heating may cause a fire or explosion.
H302 – Harmful if swallowed.
H312 – Harmful in contact with skin.
H314 – Causes severe skin burns and eye damage.
H332 – Harmful if inhaled.

Precautionary statements:
P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P284 – Wear respiratory protection.
P301+P310 – If SWALLOWED: Immediately call or POISON CENTER or a doctor/physician.
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 contact lenses, if present and easy to do. Continue rinsing.
P310 – Immediately call a POISON CENTER or doctor/ physician.
P332+P313 – If skin irritation occurs: Get medical advice/ attention.
P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P405 – Store locked up.
P501 – Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May be fatal if swallowed, inhaled, or absorbed though the skin. Causes burns and severe irritation to eyes, skin, and respiratory tract. Readily absorbs though the skin. Affects cardiovascular system, central nervous system, liver, and kidneys. Highly flammable liquid and vapor. May form explosive peroxides. Hygroscopic.
Flammable liquid and vapor (GHS Category 2)
Warning. Cancer - https://www.p65warnings.ca.gov/

SECTION 3: Composition/information on ingredients

3.1 Components

Chemical name	Common name and synonyms	CAS number	Concentration
Acetic Anhydride	No information available	108-24-7	10%
Tetrahydrofuran	No information available	109-99-9	90%

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

If inhaled	If inhaled, remove to fresh air. If breathing is labored or with coughing, give 100% supplemental oxygen. If not breathing, begin artificial respiration, but DO NOT give mouth-to-mouth resuscitation.
In case of skin contact	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover irritated skin with an emollient or anti-bacterial cream. Soap and cold water may be used. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact	Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
If swallowed	If swallowed, rinse mouth with water. Get medical attention immediately; DO NOT induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. If not breathing, begin artificial respiration. DO NOT give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

May be fatal if swallowed, inhaled, or absorbed though the skin. Causes burns and severe irritation to eyes, skin, and respiratory tract. Readily absorbs though the skin. Affects cardiovascular system, central nervous system, liver, and kidneys.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically and supportively. Persons with skin problems or liver, kidney, lung, or blood diseases may at increased risk from exposure to this product.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use sand, dry chemical, carbon dioxide, or appropriate foam. If water is the only media available, use in flooding amounts.
Unsuitable extinguishing media	Water may be ineffective.

5.2 Specific hazards arising from the substance or mixture

May decompose into toxic products under fire conditions (carbon monoxide, carbon, dioxide). Forms peroxides of unknown stability.

5.3 Special protective equipment and precautions for firefighters

As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Acetic anhydride is water reactive. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. 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.

5.4 Further information

Flash Point (Tetrahydrofuran): -14ºC (6ºF)

Autoignition Temperature (Acetic Anhydride): 316ºC (600ºF)

Explosion limits

Upper 11.8 vol %
Lower 2.0 vol %

Sensitivity to Mechanical Impact No information available.

Sensitivity to Static Discharge No information available.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	1	1

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

No information available.

6.2 Environmental precautions

Avoid runoff into streams and sewers.

6.3 Methods and materials for containment and cleaning up

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

6.4 Reference to other sections

For personal protective equipment, see Section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Hygiene measures

No information available.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep in a flammables area away from all sources of ignition and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from moisture.

Incompatibilities

See Section 10.

SECTION 8: Exposure controls/personal protection

8.1 Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Component	Type	Value
Tetrahydrofuran	Final PELs; TWA	Final PELs – 200 ppm TWA; 590 mg/m3 TWA
Acetic Anhydride	TWA	5 ppm, 20 mg/m3

US. ACGIH Threshold Limit Values

Component	Type	Value
Tetrahydrofuran	TWA; STEL	50 ppm TWA; 100 ppm STEL; Skin – potential significant contribution to overall exposure by cutaneous route
Acetic Anhydride	TWA; STEL	5 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Component	Type	Value
Tetrahydrofuran	TWA; IDLH	200 ppm TWA; 590 mg/m3 TWA; 2000 ppm IDLH
Acetic Anhydride	IDLH	200 ppm

Biological occupational exposure limits

No information available.

8.2 Exposure controls

Appropriate engineering controls

Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment

Eye/face protection
Wear protective chemical goggles and face shield for eye and face protection.

Skin protection
Use appropriate protective gloves to prevent skin exposure.

Body Protection
Use appropriate protective clothing to prevent skin exposure.

Respiratory protection
A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Control of environmental exposure
No information available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Colorless liquid
Odor	Sweetish, ethereal, possibly pungent odor
Odor Threshold	Tetrahydrofuran – 2-50 ppm
pH	Tetrahydrofuran- about 7 in aqueous solution; Acetic Anhydride – 3 (10g/L aq sol 20°C).
Melting Point/Range	Tetrahydrofuran: -108.5ºC; Acetic Anhydride: not available
Boiling Point/Range	Tetrahydrofuran - 66ºC @ 760 mm Hg; Acetic Anhydride – 140ºC @ 760 mm Hg.
Evaporation Rate	Not Available
Flammability (solid)	Not Available
Flammability or explosive limit	
Upper	11.8 vol %
Lower	2.0 vol %
Vapor Pressure	Tetrahydrofuran - 145 mm Hg @ 25ºC; Acetic Anhydride – 3.9 mm Hg @ 68ºF
Vapor Density	(Air=1); Tetrahydrofuran – 2.5; Acetic Anhydride – 3.5
Density	Specific Gravity: Tetrahydrofuran - 0.89 g/cm3; Acetic Anhydride – 1.082 g/cm3
Solubility	Tetrahydrofuran is soluble; Acetic Anhydride decomposes in water.

Partition coefficient; n-octanol/water	Not Available
Autoignition Temp	(Acetic Anhydride): 316ºC (600ºF)
Decomposition Temp	Tetrahydrofuran – not available; Acetic Anhydride: not available
Viscosity	Tetrahydrofuran - 0.48 cP 20ºC; Acetic Anhydride - 0.91mPa.s @ 20 deg C
Molecular Formula	Not Available
Molecular Weight	Not Available
VOC Content(%)	Not Available
Oxidizing properties	Not Available

9.2 Other safety information No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance is readily hydrolyzed. Reacts with water to form acetic acid.

10.2 Chemical stability

Stable under normal temperatures and pressures. Acetic Anhydride may decompose if exposed to moist air or water.

10.3 Possibility of hazardous reactions

Hazardous Polymerization: May occur in Tetrahydrofuran. Has not been reported in Acetic Anhydride.

10.4 Conditions to avoid

Ignition sources, excess heat, exposure to moist air or water, contact with water, incompatible materials.

10.5 Incompatible materials

Metals, oxidizing agents, reducing agents, bases, acids, acid chlorides, chloroformates, alcohols, amines, ammonia, nitrates, nitric acid, permanganates, phenols, sodium hydroxide, hydrogen peroxide, chromium trioxide, potassium hydroxide, perchloric acid, ethanol, oxygen, bromine, metal halides, lithium tetrahydroaluminate, borane, sodium aluminum hydride, sodium tetrahydroaluminate, caustic alkalis.

10.6 Hazardous decomposition products

Carbon monoxide, carbon, dioxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Product Information, Component Information

Acute toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrahydrofuran	Rat: LD50 = 1650 mg/kg	Not listed	Rat: LD50 = 1650 mg/kg
Acetic Anhydride	Rat: LD50 = 1780 mg/kg	Rabbit: LD50 = 4 mL/kg	Rat: LC50 = 1000 ppm/4H

Skin corrosion/irritation

Causes burns and irritation to skin. THF is not a skin sensitizer in animals. May be absorbed into body causing symptoms similar to those of inhalation.

Serious eye damage/eye irritation

Contact causes burns and irritation. Vapors may cause eye irritation. May cause reversible damage.

Respiratory or skin sensitization

May be harmful if inhaled. Causes chemical burns to the respiratory tract. May cause lung damage. Vapors may cause dizziness or suffocation. Inhalation may cause coughing, irritation of the mucous membranes and respiratory tract, difficulty breathing, and loss of consciousness. Inhalation of vapors may cause abnormal liver function as detected by laboratory results (DuPont).

Germ cell mutagenicity

THF has not produced damage in mammalian cell cultures or animals. It has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage.

Carcinogenicity

Component	CAS	IARC	NTP	ACGIH	OSHA	Mexico
Acetic Anhydride	75-05-8	Not listed	Not listed	Not listed	Not listed	Not listed

THF is listed by ACGIH as an animal carcinogen with unknown relevance to humans.

Specific target organ toxicity - single exposure

No information available.

Specific target organ toxicity - repeated exposure

No information available.

Reproductive toxicity

Animal testing for reproductive effects shows no change in reproductive performance.
Teratogenicity: Animal data show developmental effects only at exposure levels producing other toxic effects in the adult animal.

Chronic effects

Acetic Anhydride effects may be delayed. Prolonged skin contact may be painless and cause redness and subsequently a white appearance of the skin accompanied by wrinkling. Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact with Tetrahydrofuran may cause defatting and dermatitis. May cause liver, kidney, and lung damage. Narcotic in high concentrations. Data shows carcinogenic activity in the liver and kidneys of lab animals. Kidney tumors were by a mechanism that has no relevance in humans.

11.2 Additional Information

INGESTION HAZARD: Causes burns to the gastrointestinal tract. May cause perforation of the digestive tract. May cause gastrointestinal irritation with nausea, vomiting, and diarrhea. May cause central nervous system depression.

SECTION 12: Ecological information

12.1 Toxicity

Component	Subject	Value
Tetrahydrofuran	Fathead minnow	2160 mg/L; 94 Hr; flow through bioassay (pH 7.5)
Tetrahydrofuran	Water flea Daphnia	EC50 = 5930 mg/L; 24 Hr

THF is not expected to adsorb to suspended matter in water based on its measured Koc values. This compound should volatilize from water surfaces. An estimated BCF value of 1 suggests that THF will not bioconcentrate in aquatic organisms.

12.2 Persistence and degradability

Tetrahydrofuran: If released to the atmosphere, Tetrahydrofuran will exist solely in the vapor phase and is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals and nitrate radicals with half-lives of about 1 and 3 days, respectively.
Acetic Anhydride: Terrestrial: Will readily infiltrate downward toward ground water. Aquatic: Will react slowly and become miscible and will produce an irritating vapor. Mixing takes place and the spill is diluted. In rivers, the principal mixing agent is stream turbulence. Atmospheric: Since acetic anhydride is a relatively non-volatile liquid, direct venting of the vapor to the atmosphere from a hole in a ruptured vessel does not constitute a significant hazard downwind. Only vapor released from a liquid pool spilled on a ground or water surfaces is important. Not expected to bioconcentrate or degrade.

12.3 Bio accumulative potential

No information available.

12.4 Mobility in soil

Tetrahydrofuran: Measured Koc values of 23 and 18 indicate that THF will have very high mobility in soil.

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Endocrine disrupting properties

No information available.

12.7 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1 Waste Disposal Methods

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use, or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. Tetrahydrofuran is a “U” listed waste (U213 – ignitable waste).

SECTION 14: Transport information

DOT (US)

UN Number	UN2924
Proper Shipping name	Flammable Liquid, Corrosive (Tetrahydrofuran, Acetic Anhydride)
Hazard Class	3 (8)
Packaging Group	II

IMDG

UN Number	UN2924
Proper Shipping name	Flammable Liquid, Corrosive (Tetrahydrofuran, Acetic Anhydride)
Hazard Class	3 (8)
Packaging Group	II

IATA

UN Number	UN2924
Proper Shipping name	Flammable Liquid, Corrosive (Tetrahydrofuran, Acetic Anhydride)
Hazard Class	3 (8)
Packaging Group	II

SECTION 15: Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

CAS# 109-99-9 and CAS# 108-24-7 are listed on the TSCA Inventory.
Health and Safety Reporting List: Not listed.
Chemical Test Rules: CAS# 109-99-9 – 40 CFR 799.5115
Section 12b: CAS# 75-05-8 – Section 4, 1% de minimis rule
TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substance List (40 CFR 302.4)

CAS# 109-99-9 – 1000 lb final RQ; 454 kg final RQ; CAS# 108-24-7: 5000 lb final RQ; 2270 kg final RQ

SARA 304 Emergency release notification

No information available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not considered highly hazardous by OSHA.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Does not have a TPQ

SARA 311/312 Hazardous

CAS# 109-99-9 – immediate, fire, reactive; CAS # 108-24-7: immediate, delayed, fire, reactive.

SARA 313 (TRI reporting)

Tetrahydrofuran (CAS# 109-99-9) and Acetic Anhydride (CAS# 108-24-7) are not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

CAS# 109-99-9 and CAS# 108-24-7 8 are not listed as a hazardous air pollutant (HAP). They are not Class 1 Ozone Depleters. They are not Class 2 Ozone Depleters.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

No information available.

Safe Drinking Water Act

CAS# 109-99-9 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.
CAS# 108-24-7 is listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

No information available.

US state regulations

US. Massachusetts RTK - Substance List

CAS# 109-99-9 and CAS# 108-24-7 are on the state right-to-know list.

US. New Jersey Worker and Community Right-to-Know Act

CAS# 109-99-9 and CAS# 108-24-7 are on the state right-to-know list.

US. Pennsylvania Worker and Community Right-to-Know Law

CAS# 109-99-9 and CAS# 108-24-7 are on the state right-to-know list.

California Proposition 65

This product contains tetrahydrofuran (THF), a chemical known to the State of California to cause developmental toxicity. For more information, visit: www.P65Warnings.ca.gov.

SECTION 16: Other information

Date of Issue: 6/29/2026

SECTION 17: Disclaimer

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.