

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

This SDS is used for the following Arcot products:

Arcot #1169 Isopropyl Alcohol (IPA) 99-100%

Arcot #1169-70 Isopropyl Alcohol 70%, Technical Grade

Manufacturer: Arcot Manufacturing Corporation, 2950 Mowery Road, Houston, Texas, U.S.A. 77045

Emergency Response Telephone: 1-800-633-8253 (Account #9390)

Arcot Customer Service Telephone: 713-413-9700

Website: www.ArcotManufacturing.com

Recommended Use: Alcohol solvent

Restrictions on Use: For commercial and industrial use only. Highly Flammable.

2. HAZARDS IDENTIFICATION

GHS Classification:

Flammable liquids: Category 2

Eye irritation: Category 2A

Specific target organ toxicity - single exposure: Category 3 (Central nervous system)

GHS Label element

Hazard pictograms:



Signal Word: **DANGER**

Hazard statements:

H225: Highly flammable liquid and vapor.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

Precautionary statements:

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
No smoking.

P233: Keep container tightly closed.

P261: Avoid breathing mist, vapors and spray.

P264: Wash skin thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves, eye protection and face protection.

Response:

P301 + P310 + P331: IF SWALLOWED: Immediately call a doctor. Do NOT induce vomiting.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P302 + P352: IF ON SKIN: Wash with plenty of water and soap.
P362 + P364: Take off contaminated clothing and wash it before reuse.
P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.
P315: If any irritation persists, get immediate medical attention.
P370: In case of fire: Use alcohol-resistant foam, carbon dioxide (CO²) or dry chemical to extinguish.

Storage:

P235: Keep cool.
P403: Store in a well-ventilated place.
P405: Store locked up.
P410: Protect from sunlight.

Disposal:

P501: Dispose of contents and container to an approved waste disposal plant in accordance with applicable local, state, federal and international regulations.

Potential Health Effects

Carcinogenicity:

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Emergency Overview

WARNING!

Appearance liquid
Color colorless, clear
Odor alcohol-like

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

Hazardous components:

Chemical Name	CAS #	Concentration (%)
Isopropyl alcohol	67-63-0	70 – 100

Ethanol	64-17-5	0.1 – 1
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Synonyms: Isopropanol Anhydrous/ Isopropyl Alcohol

4. FIRST-AID MEASURES

General advice: Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.

If inhaled: Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.

In case of skin contact: If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Immediately flush eye(s) with plenty of water. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Alcohol-resistant foam, Carbon dioxide (CO₂), Dry chemical

Unsuitable extinguishing media: High volume water jet

Specific hazards during firefighting: Do not allow run-off from firefighting to enter drains or water courses.

Hazardous combustion products: Carbon oxides

Specific extinguishing methods: Use a water spray to cool fully closed containers.

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

NFPA Flammable and Combustible Liquids Classification: Flammable Liquid Class IB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see section 13).

7. HANDLING AND STORAGE

Advice on safe handling: Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection, see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage: No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully re-sealed and kept upright to prevent leakage. Observe label precautions. Electrical installations/working materials must comply with the technological safety standards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters:

Cas-No.	Components	Value type (Form of exposure)	Control Parameters / Permissible concentration	Basis
67-63-0	Isopropyl alcohol	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m ³	NIOSH REL
		ST	500 ppm 1,225 mg/m ³	NIOSH REL
		TWA	400 ppm 980 mg/m ³	OSHA Z-1
		TWA	400 ppm 980 mg/m ³	OSHA P0
		STEL	500 ppm 1,225 mg/m ³	OSHA P0

Biological occupational exposure limits:

Components	Cas-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Isopropyl alcohol	67-63-0	Acetone	In urine	End of shift at end of work-week	40 mg/l	ACGIH BEI

Personal protective equipment:

Respiratory protection: No personal respiratory protective equipment normally required. In the case of vapor formation, use a respirator with an approved filter.

Hand protection: The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection: Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection: Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	liquid
Color	colorless, clear
Odor	alcohol-like
Odor Threshold	200 ppm
pH	No data available
Freezing Point/Melting Point	100%: -88°C (-126°F); 70%: -29°C (-20°F)
Boiling Point	100%: 82°C (180°F)
Flash point	100%: 12°C (54°F); 70%: 18°C (65°F)
Evaporation rate (n-Butyl Acetate = 1)	100%: 1.2
Flammability (solid, gas)	No data available
Burning rate	No data available
Upper explosion limit	100% IPA: 12.7% (V)
Lower explosion limit	100% IPA: 2% (V)
Vapor pressure	100% IPA: 32 mmHg @ 20 °C (68°F)
Relative vapor density (AIR=1)	100% IPA: 2 @ 20°C (68°F)
Relative density @20°C (68°F) (water = 1)	100% IPA: 0.79; 70% IPA: 0.84
Density @20°C (68°F)	100% IPA: 0.79 g/cm ³ or 6.59 Lb./Gal. 70% IPA: 0.84 g/cm ³ or 7.0 Lb./Gal.
Bulk density	No data available
Solubilities	Water solubility: completely miscible Solubility in other solvents: No data available
Partition coefficient (n-octanol/water):	100% IPA: log Pow: 0.05 @25°C (77°F)
Auto-ignition temperature	100% IPA: 399 °C
Thermal decomposition	No data available
Viscosity for 100% IPA	Viscosity, dynamic: 2.4 mPa.s @20°C (68°F) Viscosity, kinematic: 3.64 - 6 mm ² /s @40°C (104°F)

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid: Heat, flames and sparks.

Incompatible materials: Aldehydes, Chlorine, Ethylene oxide, halogens, isocyanates, strong acids, strong oxidizing agents

Hazardous decomposition products: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity: Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: > 40 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Components:

67-63-0	Acute oral toxicity: LD50 (rat): 5,045 mg/kg Acute inhalation toxicity: LC50 (rat): 16000 ppm Acute dermal toxicity: LD50 (rabbit): 12,800 mg/kg
64-17-5	Acute oral toxicity: LD50 (rat): 7,060 mg/kg Acute inhalation toxicity: LC50 (rat): 124.7 mg/l Acute dermal toxicity: Remarks: No data available

Skin corrosion/irritation

Product: May cause skin irritation in susceptible persons.

Components:

67-63-0	Species: rabbit; Result: Mild skin irritation
64-17-5	Species: rabbit; Result: No skin irritation

Serious eye damage/eye irritation

Product: Eye irritation

Components:

67-63-0	Species: rabbit; Result: Irritating to eyes
64-17-5	Species: rabbit; Result: Irritating to eyes

Respiratory or skin sensitization

Components:

64-17-5	Test Type: lymph node assay; Species: mouse; Method: OECD Test Guideline 429; GLP: No data available; Remarks: Did not cause sensitization on laboratory animals
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Germ cell mutagenicity

Components:

67-63-0	Genotoxicity in vitro: Test Type: Ames test; Test species: Salmonella typhimurium; Result: negative Genotoxicity in vivo: Test Type: In vivo micronucleus test; Test species: mouse; Method: OECD Test Guideline 474; Result: negative Germ cell mutagenicity - Assessment: Did not show mutagenic effects in animal experiments.
64-17-5	Genotoxicity in vitro: Test Type: Mammalian cell gene mutation assay; Test species: mouse lymphoma cells; Metabolic activation: with and without metabolic activation; Method: OECD Test Guideline 476; Result: negative; GLP: No data available Genotoxicity in vivo: Test Type: Dominant lethal assay; Test species: mouse (male); Application Route: Oral; Dose: 10 or 40% ethanol in water; Method: OECD Test Guideline 478; Result: negative; GLP: No data available

	Germ cell mutagenicity - Assessment: Mutagenicity classification not possible from current data.
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Carcinogenicity

Components:

67-63-0	Species: rat; NOAEL: 5,000 ppm; Method: OECD Test Guideline 451; Carcinogenicity - Assessment: Not classifiable as a human carcinogen.
64-17-5	Carcinogenicity - Assessment: Carcinogenicity classification not possible from current data.

Reproductive toxicity

Components:

67-63-0	Reproductive toxicity - Assessment: Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
64-17-5	Effects on fertility: Test Type: Two-generation study; Species: mouse, male and female; Application Route: oral; Dose: 5, 10 and 15% v/v in water; General Toxicity - Parent: NOAEL: 15 % diet; General Toxicity F1: NOAEL: 10 % diet; Symptoms: reduced litter size Reduced sperm motility in F1 generation; Method: OECD Test Guideline 416; GLP: No data available Effects on fetal development: Species: rat; Application Route: Inhalation; Dose: 10,000, 16,000 or 20,000 ppm; General Toxicity Maternal: NOAEL: 16,000 ppm; Teratogenicity: NOAEL: > 20,000 ppm; Symptoms: No malformations were observed; Method: OECD Test Guideline 414; GLP: No data available Reproductive toxicity - Assessment: Fertility classification not possible from current data. Embryotoxicity classification not possible from current data.

STOT - single exposure

Product: No data available

Components:

67-63-0:

Exposure routes	Target Organs	Assessment	Remarks
Inhalation	Central nervous system	May cause drowsiness or dizziness. The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.	

64-17-5:

Exposure routes	Target Organs	Assessment	Remarks
Inhalation	Central nervous system	May cause drowsiness or dizziness. The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.	
Inhalation	Respiratory system	May cause respiratory irritation. The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.	

STOT - repeated exposure

Product: No data available

Components: 67-63-0: No data available. 64-17-5: No data available

Repeated dose toxicity

Components:

64-17-5	Species: rat, male and female: NOAEL: 10 ml/kg; Application Route: Oral; Exposure time: 7 or 14 wk; Number of exposures: 2 times/d, 7 d/wk; Dose: 5, 10, 20ml/kg of 16.25% etoh; Method: OECD Test Guideline 408; GLP: yes
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Aspiration toxicity

Components: 64-17-5: No aspiration toxicity classification.

Further information

Product: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

67-63-0	Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l; Exposure time: 96 h Toxicity to daphnia and other aquatic invertebrates: LC50 (Daphnia magna (Water flea)): > 100 mg/l; Exposure time: 48 h Toxicity to algae: Remarks: No data available
64-17-5	Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 15,300 mg/l; Exposure time: 96 h; Test Type: flow-through test Toxicity to daphnia and other aquatic invertebrates: EC50 (Ceriodaphnia dubia): 5,012 mg/l; Exposure time: 48 h; Test Type: static test Toxicity to algae: EC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l; End point: Growth rate; Exposure time: 72 h; Test Type: static test; Method: OECD Test Guideline 201; GLP: No data available

Persistence and degradability

Components:

64-17-5	Biodegradability: Result: Result: Readily biodegradable.
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Bioaccumulative potential

Components:

64-17-5	Bioaccumulation: Remarks: Bioaccumulation is unlikely.
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Mobility in soil: No data available

Other adverse effects: No data available

Product:

Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602
Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A + B).

Additional ecological information: No data available.

13. DISPOSAL CONSIDERATIONS

Disposal methods:

Waste from residues Dispose of in accordance with all applicable local, state and federal regulations.

Contaminated packaging Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

IATA (International Air Transport Association): UN1219, Isopropanol, 3, II, Flash Point: 12°C (54°F) for 100% IPA

IMDG (International Maritime Dangerous Goods): UN1219, ISOPROPANOL, 3, II

DOT (Department of Transportation): UN1219, Isopropanol, 3, II

15. REGULATORY INFORMATION

OSHA Hazards: Flammable liquid. Moderate eye irritant.

WHMIS Classification: B2: Flammable liquid

D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity: This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity: This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards: Fire Hazard

Acute Health Hazard

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

67-63-0	Isopropyl alcohol	70-100 %
64-17-5	Ethanol	0.1 %
71-23-8	n-Propanol	0.015 %

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. Clean Water Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. Clean Water Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

U.S. State Regulations

Massachusetts Right To Know

67-63-0	Isopropyl alcohol	90 - 100 %
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Pennsylvania Right To Know

67-63-0	Isopropyl alcohol	90 - 100 %
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New Jersey Right To Know

67-63-0	Isopropyl alcohol	90 - 100 %
64-17-5	Ethanol	0.1 - 1 %

California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

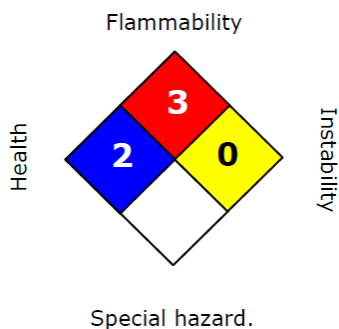
The components of this product are reported in the following inventories:

Switzerland – New notified substances and declared preparations	y (positive listing) (The formulation contains substances listed on the Swiss Inventory)
United States TSCA Inventory	y (positive listing) (On TSCA Inventory)
Canadian Domestic Substances List (DSL)	y (positive listing) (All components of this product are on the Canadian DSL.)
Australia Inventory of Chemical Substances (AICS)	y (positive listing) (On the inventory, or in compliance with the inventory)
New Zealand - Inventory of Chemical Substances	y (positive listing) (On the inventory, or in compliance with the inventory)
Japan – ENCS (Existing and New Chemical Substances) Inventory	y (positive listing) (On the inventory, or in compliance with the inventory)
Japan – ISHL - Inventory of Chemical Substances (METI)	y (positive listing) (On the inventory, or in compliance with the inventory)
Korea – Korean Existing Chemicals Inventory (KECI)	y (positive listing) (On the inventory, or in compliance with the inventory)
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	y (positive listing) (On the inventory, or in compliance with the inventory)
China – Inventory of Existing Chemical Substances in China (IECSC)	y (positive listing) (On the inventory, or in compliance with the inventory)

16. OTHER INFORMATION

NFPA:

HMIS III:



HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

HMIS & NFPA ratings involve data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this SDS must be considered.

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

ACGIH	American Conference of Government Industrial Hygienists
AICS	Australia, Inventory of Chemical Substances
DSL	Canada, Domestic Substances List
NDSL	Canada, Non-Domestic Substances List
CNS	Central Nervous System
CAS	Chemical Abstract Service
EC50	Effective Concentration
EC50	Effective Concentration 50%
EGEST	EOSCA Generic Exposure Scenario Tool
EOSCA	European Oilfield Specialty Chemicals Association
EINECS	European Inventory of Existing Chemical Substances
MAK	Germany Maximum Concentration Values
GHS	Globally Harmonized System
>=	Greater Than or Equal To
IC50	Inhibition Concentration 50%
IARC	International Agency for Research on Cancer
IECSC	Inventory of Existing Chemical Substances in China
ENCS	Japan, Inventory of Existing and New Chemical Substances
KECI	Korea, Existing Chemical Inventory
<=	Less Than or Equal To
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
LOAEL	Lowest Observed Adverse Effect Level
NFPA	National Fire Protection Agency
NIOSH	National Institute for Occupational Safety & Health
NTP	National Toxicology Program
NZIoC	New Zealand Inventory of Chemicals
NOAEL	No Observable Adverse Effect Level
NOEC	No Observed Effect Concentration
OSHA	Occupational Safety & Health Administration
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Commercial Chemical Substances
PRNT	Presumed Not Toxic
RCRA	Resource Conservation Recovery Act
STEL	Short-term Exposure Limit
SARA	Superfund Amendments and Reauthorization Act.

TLV	Threshold Limit Value
TWA	Time Weighted Average
TSCA	Toxic Substance Control Act
UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
WHMIS	Workplace Hazardous Materials Information System

DISCLAIMER: The information contained herein is based upon data obtained from sources believed to be reliable and reflects our best professional judgment. Since it is impossible to anticipate all of the conditions under which our products may be used, we do not guarantee that the recommendations will be adequate for all individuals and situations. Each user of this product should determine the suitability of the product for his or her particular purpose and should comply with all federal, state and local regulations. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. We shall not be held liable for any damage resulting from handling or from contact with the above product or from improper use of our products. We do not provide any warranties, expressed or implied, and do not assume any responsibility for the accuracy or completeness of the data contained herein. This information is offered for your information, consideration, and investigation. You should satisfy yourself that you have all current data relevant to your particular use. We update SDS and labels on a regular basis. Please do not hesitate to contact us for current information.

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