



Arch Chemicals, Inc.

**MATERIAL
SAFETY DATA**

FOR ANY EMERGENCY, CALL 24HOURS/ 7 DAYS:	1-800-654-6911
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC(R):	1-800-424-9300
FOR ALL MSDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS

PRODUCT NAME: QZ 3512 POLYIMIDE RINSE

I. PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE: 07-10-2001
SUPERCEDES: 02-16-2001

MSDS NO: 01365-0019 - 850974
SYNONYMS: Butyl ethanoate, acetic acid butyl ester
CHEMICAL FAMILY: Ester
DESCRIPTION / USE: Organic solvent
FORMULA: C₆H₁₂O₂

Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204

II. COMPOSITION/INFORMATION ON INGREDIENTS

CAS or CHEMICAL NAME	CAS #	% Range
Acetic acid, butyl ester	123-86-4	98 - 100

III. HAZARDS IDENTIFICATION

OSHA Hazard Classification: flammable, eye irritant, skin irritant, respiratory irritant, central nervous system depressant

Routes of Entry: Inhalation, skin, eyes, ingestion
Chemical Interactions: No known interactions
Medical Conditions Aggravated: Respiratory diseases including asthma and bronchitis, Dermatitis may be aggravated following exposure.

Human Threshold Response Data

Odor Threshold:	
Acetic acid, butyl ester	0.39 ppm
Irritation Threshold:	
Acetic acid, butyl ester	200.0 - 300.0 ppm

Hazardous Materials Identification System/National Fire Protection Association Classifications

<u>Hazard Ratings:</u>	<u>Health</u>	<u>Flammability</u>	<u>Reactivity</u>
HMIS	1	3	0
NFPA	1	3	0

Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to be toxic by inhalation. Inhalation of high concentrations may result in central nervous system (CNS) effects such as dizziness, weakness, fatigue, nausea, headache, and lack of coordination.
Inhalation Irritation:	High concentrations may be slightly irritating to the eyes, nose, throat, and lungs.
Skin Contact:	Skin contact may cause moderate irritation consisting of transient redness and swelling. This irritant effect would not be expected to result in permanent damage.
Skin Absorption:	No significant adverse effects to health would be expected to occur from dermal contact.
Eye Contact	Contact may cause moderate irritation consisting of transient redness, swelling, and mucous membrane discharge to the conjunctiva. No corneal involvement or visual impairment is expected.
Ingestion Irritation:	Ingestion may cause irritation of the gastrointestinal tract and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.
Ingestion Toxicity:	Not expected to be toxic by ingestion.

Acute Target Organ Toxicity: Central nervous system

Prolonged (Chronic) Health Effects

Carcinogenicity:	This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product.

Inhalation:	There are no known or reported effects from chronic exposure except for effects similar to those experienced from acute exposure.
Skin Contact:	Dermal contact may cause defatting of skin and/or dermatitis.
Skin Absorption:	There are no known or reported effects from chronic exposure except for effects (if any) similar to those experienced from acute exposure.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.

Supplemental Health Hazard Information: No additional health information available.

IV. FIRST AID

Inhalation:	IF INHALED: Remove individual to fresh air. If respiratory irritation develops, call a physician.
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Skin Contact: IF ON SKIN: Immediately flush skin with plenty of water for 15 minutes. If clothing comes in contact with the product, the clothing should be removed immediately and laundered before re-use. Call a physician.

Eyes: IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids apart. Call a physician immediately.

Ingestion: IF SWALLOWED: Immediately drink water to dilute. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.

V. FIRE FIGHTING MEASURES

Flammability Summary (OSHA): Flammable.

Flammable Properties

Flash Point: 22 Deg. C. / 72 Deg. F. (Test Method: Cleveland Closed Cup)

Autoignition Temperature: 404 Deg. C. / 760 Deg. F.

Upper Flammable/Explosive Limit, % in air: 7.6 %

Lower Flammable/Explosive Limit, % in air: 1.7 %

Fire/Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back.

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, dry chemical, or vaporizing liquid extinguishing agents. Water spray or fog may also be effective for extinguishing or to absorb heat and keep exposed material from being damaged by fire.

Fire Fighting Instructions: In case of fire, use normal fire fighting equipment including a NIOSH approved self-contained breathing apparatus (SCBA). Use water to cool containers.

Hazardous Combustion Products: carbon monoxide, carbon dioxide

VI. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations: Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hard hat, splash-proof goggles, impervious clothing, i.e., chemically impermeable suit, self-contained breathing apparatus.

Spill Mitigation Procedures

Air Release: Hazardous concentrations in air may be found in local spill area and immediately downwind. Vapors may be suppressed by the use of water fog. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste.

Water Release: This material is lighter than water. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so.

Land Release: Create a dike or trench to contain materials. Absorb spill with inert material (e.g., dry sand, clay, earth or commercial absorbent), then place in a chemical waste container. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water. Contain all contaminated water for disposal and/or treatment.

Additional Spill Information: Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section XIII, Disposal Consideration. This product may represent an explosion hazard.

VII. HANDLING AND STORAGE

Handling: Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor. Ground and bond containers when transferring material.

Storage: Store in a cool dry ventilated location, away from sources of ignition or other incompatible conditions and chemicals. Keep container(s) closed. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet.

Shelf Life Limitations: See label or certificate of analysis for shelf life if applicable.

Incompatible Materials for Storage: Refer to Section X, "Incompatible Materials."

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Local exhaust ventilation or other engineering controls are necessary when handling or using this product. Use explosion-proof ventilation equipment when handling this product.

Protective Equipment for Routine Use of Product

Respiratory Protection: Wear a NIOSH approved respirator if levels above the exposure limits are possible.

Respirator Type(s): A NIOSH approved air purifying respirator with organic vapor cartridge. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.

Skin: Wear impervious gloves to avoid skin contact. Follow good industrial hygiene practices.

Eyes: Use chemical goggles.

Protective Clothing Type: Polyethylene and ethylene vinyl alcohol copolymer such as 4H.

Exposure Limit Data

CHEMICAL NAME	CAS #	OSHA PEL / STEL	ACGIH LIMITS	ACGIH WEEL
n-Butyl acetate	123-86-4	150 ppm TWA; 710 mg/m ³ TWA	200 ppm STEL 150 ppm TWA	Not Established

CHEMICAL NAME	NIOSH Immediately Dangerous to Life or Health:
n-Butyl acetate	1700 ppm IDLH (10 percent lower explosive limit)

IX. PHYSICAL DATA

Physical State: clear liquid

Odor: mild Fruity

Molecular Weight: 116.16

pH: (@ 25 Deg. C) Not applicable

Octanol/Water Coeff: No data

Solubility in Water: Slight

Bulk Density: 0.9 g/cc

Specific Gravity: 0.9

Vapor Density:	4.00
Vapor Pressure:	(@ 25 Deg. C) 15 mmHg
Evaporation Rate:	1.00 (n-Butyl acetate = 1)
Volatiles, % by vol.:	100 %
Boiling Point:	127 Deg. C. 260 Deg. F.
Freezing Point:	-73.5 Deg. C. -101 Deg. F.

X. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions. Static discharge may cause ignition at temperatures at or above the flash point.
Reactive Properties:	Not sensitive to mechanical shock., Product is sensitive to electrical static discharge., Flammable
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	High temperatures Temperatures above the flash point in combination with sparks, open flames, or other sources of ignition.
Chemical Incompatibility:	strong oxidizing agents, acids, strong alkalies, Nitrates, Potassium Terbutoxide
Hazardous Decomposition Products:	carbon dioxide, carbon monoxide
Decomposition Temperature:	> 127 Deg. C. > 260 Deg. F.

XI. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value:	
Acetic acid, butyl ester	Oral LD50 Rat > 5 g/kg
Dermal LD50 value:	
Acetic acid, butyl ester	Dermal LD50 Rat > 5 g/kg
Inhalation LC50 value:	
Acetic acid, butyl ester	Inhalation LC50 (4h) Rat = 2000 ppm

Product Animal Toxicity See component data.

Skin Irritation: This material is expected to be moderately irritating.

Eye Irritation: This material is expected to be moderately irritating.

Reproductive and Developmental Toxicity: No reproductive or developmental risk to humans is expected from exposure to this product.

Component Data:

Acetic acid, butyl ester This chemical has been tested in laboratory animals and there was no evidence of reproductive toxicity, teratogenicity, or developmental toxicity.

Mutagenicity: Not known or reported to be mutagenic.

Component Data:

Acetic acid, butyl ester This chemical has been shown to be non-mutagenic based on a battery of assays.

Carcinogenicity: This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

XII. ECOLOGICAL INFORMATION

Overview: Slight ecological hazard.

Ecological Toxicity Values:

Acetic acid, butyl ester Bluegill 96 hr. LC50: = 100 mg/l (nominal, static).
Daphnia magna, 24 hr. EC50: = 205 mg/l (nominal, static).
Inland silverside 96 hr. LC50: = 185 mg/l (nominal, static).
Brine shrimp 48 hr. LC50: = 32 mg/l (nominal, static).
Green algae (Scenedesmus quadricauda), 7 Days = 21 mg/l (nominal, static).
Fathead minnow, 96 hr. LC50: = 18 mg/l (measured, flow-through).

XIII. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary: Spent or discarded material may be a hazardous waste.
Potential US EPA Waste Codes: D001
Disposal Methods: As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by incineration.

Components subject to land ban restrictions: n-Butyl acetate (D001)

XIV. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description (49 CFR 172.101):

Land (U.S. DOT): BUTYL ACETATE 3 UN1123 PGII
Air (IATA/ICAO): SAME AS LAND
Water (IMO): BUTYL ACETATE, 3.2, UN1123, PGII
Flash Point: (C) 22

Hazard Label/Placard: (Primary) FLAMMABLE
n-Butyl acetate final RQ = 5000 pounds (2270 kg)

Emergency Response Guide Number: 129

XV. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA): The components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

Pesticide acceptance indication: US EPA Registration Number: Not applicable

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311/312 (40 CFR 370.2):

Health: Acute
Physical: Fire

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

Not applicable

Reportable Quantity (40 CFR 302.4):

Butyl acetate final RQ = 5000 pounds (2270 kg)

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

No 313-listed chemicals in this product

Clean Air Act VOC Section 111

n-Butyl acetate

State Right-to-Know Regulations Status of Ingredients

Pennsylvania: Acetic acid, butyl ester

New Jersey: n-Butyl acetate

Massachusetts: Butyl acetate

XVI. ADDITIONAL INFORMATION

MSDS REVISION

Revised to meet the ANSI standard of 16 sections.

STATUS:

MAJOR REFERENCES:

- Battelle Pacific Northwest Labs., Teratogenic Study of ethyleneoxide and Propylene Oxide and n-Butyl Acetate. National Institute for Occupational Safety and Health PB 83-258038, May 1982.
- Shimizu, H. et al. The results of microbial mutation test for forty three industrial chemicals. Japan J. Ind. Health. Vol. 27,400-419, 1985

Other references available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT.