



Amoco Chemicals Corporation

200 East Randolph Drive
Post Office Box 8640-A
Chicago, Illinois 60680

CONOCO SAFETY
DIVISION

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March 20, 1984

Conoco Chemicals
5 Greenway Plaza East
Post Office Box 2197
Houston, Texas 77001

Attention: Manager, Product Safety

Dear Sir/Madam:

Attached for your information and review is the most current Material Safety Data Sheet for product(s) noted below which have been purchased by your firm.

Please acknowledge receipt of the attached Material Safety Data Sheet(s) by signing in the space provided below and returning this entire letter to us. If the addressee of this letter is not the person responsible for health and safety in your organization, please identify him/her below. Revised Material Safety Data Sheets and any other health and safety information will subsequently be addressed to the person indicated.

R. W. Marion

Richard W. Marion
Manager, Product Management
Chemical Intermediates
Mail Code 4004

RWM/mdb

Attachments

Amoco Butadiene

I acknowledge receipt of the Material Safety Data Sheets as indicated on this letter.

Signed _____

Title _____

Date _____

Person responsible for health and safety (if other than addressee):

Name _____

Title _____

Company _____

Address _____

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Industrial Hygiene and Toxicology Data Sheet
Industrial Hygiene And Toxicology Division
Environmental Conservation And Toxicology Department

Form U-1967-C (8-78)

Section I

Trade Name and Synonyms AMOCO BUTADIENE (INHIBITED) VINYLETHYLENE DIVINYL		Emergency Phone Number (312) 856 - 5371
Manufacturer's Name Amoco Chemicals Corporation		Warning Statement DANGER! EXTREMELY FLAMMABLE. IRRITATING LIQUID AND GAS UNDER PRESSURE. LIQUID CAUSES FROST BURNS. DO NOT VENT INTO ATMOSPHERE OR ENCLOSURES UNLESS AREA IS SUFFICIENTLY VENTILATED TO REDUCE VAPOR CONCENTRATION BELOW FLAMMABLE LIMIT.
Address 200 East Randolph Drive, Chicago, Illinois 60601		
Product Identification BUTADIENE		
CAS Number 106-99-0	Formula CH₂(CH)₂CH₂	DOT Classification FLAMMABLE GAS
EPA Number —		

Section II - Important Components

1,3-BUTADIENE
Permissible Exposure Concentration SEE SECTION X

Section III - Health Effects Of Exposure

Eye	LIQUID CAN CAUSE BURNS SIMILAR TO FROST BITE. VAPOR MAY CAUSE MILD IRRITATION.
Skin	LIQUID CAN CAUSE BURNS SIMILAR TO FROST BITE.
Inhalation	VAPORS CAN CAUSE IRRITATION OF NOSE, THROAT, LUNGS, AND CENTRAL NERVOUS SYSTEM DEPRESSION. NARCOTIC IN HIGH CONCENTRATIONS. ACUTE LC₅₀ 250,000 mg/m³; 2 HOURS (RATS).
Ingestion	ACUTE ORAL LD₅₀ 3210 mg/kg (RATS).

Section IV - Emergency And First Aid Procedures

Eye Contact	CONTACT WITH LIQUID: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES THEN GET IMMEDIATE MEDICAL ATTENTION.
Skin Contact	CONTACT WITH LIQUID: IMMEDIATELY FLUSH EXPOSED SKIN WITH PLENTY OF WATER. GET PROMPT MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING, INCLUDING SHOES, AND THOROUGHLY CLEAN AND DRY BEFORE REUSE.
Inhalation	IF ADVERSE EFFECTS OCCUR, REMOVE TO UNCONTAMINATED AREA; GET MEDICAL ATTENTION.
Ingestion	NOT APPLICABLE.

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Section V - Personal Protection Information

BUTADIENE

Eye	WEAR CHEMICAL GOGGLES.
Skin	WEAR IMPERVIOUS CLOTHING, GLOVES, AND FACE SHIELD.
Respiratory	IF VENTILATION IS INADEQUATE, USE NIOSH-MSHA CERTIFIED RESPIRATOR WHICH WILL PROVIDE PROTECTION AGAINST ORGANIC VAPOR OR AIR-SUPPLIED RESPIRATOR.
Ventilation (Type Required)	GENERAL AREA OR LOCAL EXHAUST AS REQUIRED.

Section VI - Fire Protection Information

Flash Point (Method)	-105°F (-76°C)	Autoignition Temperature	804°F (429°C)
Flammable Limits (by Volume in Air)	Upper 12	Lower	2
Extinguishing Media	STOP FLOW OF GAS; ALLOW GAS TO BURN IF FLOW CANNOT BE SHUT OFF IMMEDIATELY, THEN USE CARBON DIOXIDE, DRY CHEMICAL (B-C), OR WATER SPRAY.		
Unusual Fire and Explosion Hazards	EXTREMELY FLAMMABLE GAS; DANGEROUS WHEN EXPOSED TO HEAT. VAPORS ARE HEAVIER THAN AIR; MAY TRAVEL A CONSIDERABLE DISTANCE AND THEN 'FLASH BACK'.		

Section VII - Physical Properties And Reactivity Data

Boiling Point (°F)	23° (-4.4°C)	Vapor Pressure (mm Hg 20 °C)	1810; 2atm @ 15.3°C; 5atm @ 47.0°C
Melting Point (°F)	-228 (-144°C)	Vapor Density (Air = 1)	1.9
Specific Gravity (Water = 1)	1.88 (GAS) 0.62 (LIQUID)	Solubility in Water	NEGLIGIBLE
Viscosity	NOT APPLICABLE		
Appearance and Odor	COLORLESS GAS; MILDLY AROMATIC ODOR		
Hazardous Polymerization	Occurs	Does NOT Occur	X
Products Formed When Subjected to High Temperature or Combustion	CARBON MONOXIDE, CARBON DIOXIDE, VARIOUS HYDROCARBONS AND HYDROCARBON DERIVATIVES.		
Materials to Avoid	OXIDIZERS		

Section VIII - Storage and Environmental Protection

Storage Requirements	PROTECT CONTAINER FROM PHYSICAL DAMAGE; STORE IN A COOL, WELL VENTILATED AREA AWAY FROM HEAT, SPARKS OR OPEN FLAME. STORAGE IS USUALLY UNDER PRESSURE OR IN INSULATED TANKS BELOW 35°F (1.7°C).		
Procedures In Case of Breakage or Leakage	SHUT OFF FLOW OF GAS; ISOLATE AREA; INCREASE VENTILATION IF POSSIBLE; USE WATER SPRAY TO DISPERSE VAPORS.		
Waste Disposal	VENT VAPOR AT A SAFE LOCATION (BE SURE TO DISSIPATE GAS BELOW ITS LOWER EXPLOSIVE LIMIT) UNLESS DIRECTED OTHERWISE BY APPLICABLE ORDINANCES.		
Biodegradability	☒ Yes ☐ No ☐ Unknown	Bioaccumulation	☐ Yes ☐ No ☒ Unknown

Section IX - Marketing And Use Regulated By (Specific Regulations)

☐ FDA	☐ USDA	☐ Other (Specify)
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Section X - Comments

PERMISSIBLE EXPOSURE CONCENTRATION: The International Institute of Synthetic Rubber Producers reports that a lifetime rat inhalation study produced adverse results at a 1000 ppm exposure level. Adverse dose-related weight gain effects were seen also in an inhalation teratology study in rats at 200,1000, and 8000 ppm exposure levels. Effects in the fetus appeared to be due to maternal toxicity. On the basis of this, we believe that the ACGIH TWA TLV may, in the future, be reduced from the present limit of 1000 ppm.

Label copy:

DANGER! EXTREMELY FLAMMABLE. IRRITATING LIQUID AND GAS UNDER PRESSURE. LIQUID CAUSES FROST BURNS. DO NOT VENT INTO ATMOSPHERE OR ENCLOSURES UNLESS AREA IS SUFFICIENTLY VENTILATED TO REDUCE VAPOR CONCENTRATION BELOW FLAMMABLE LIMIT.

Do not get in eyes, on skin, or clothing. Keep away from heat, sparks and open flame. Keep container closed.

FOR EYES: In case of contact with liquid, immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

FOR SKIN: In case of contact with liquid, flush exposed skin with plenty of water. Get prompt medical attention.

HANDLING: For liquid, wear chemical goggles, impervious clothing, gloves and face shield. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse. Use with adequate ventilation

- ATTENTION -

After this container has been emptied, it may contain flammable and toxic liquid or vapors; observe all warnings and precautions listed for this product. Do not cut, puncture or weld on or near this container.

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N/A - Data not available.

Information Supplied By Walter Roy Quanstrom	Signature <i>Walter Roy Quanstrom</i>	Title Manager, Industrial Hygiene, Toxicology and Safety	Date Revised December 14, 1982
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Explanation of Terms Used on the Industrial Hygiene and Toxicology Data Sheet

Section I

Trade Name & Synonyms

The name under which the product is marketed and the common commercial name of the product.

Product Identification

The chemical or generic name of single elements and compounds or for compounded products and mixtures, the general type of product, e.g., calcium complex grease, motor oil, polymer, sulfonate, surfactant, etc.

CAS Number

The Chemical Abstracts Registry number, if applicable.

EPA Number

The code number assigned by the Environmental Protection Agency, if applicable.

Formula

The chemical formula for single elements or compounds.

DOT Classification

The appropriate classification as determined by the regulations of the Office of Hazardous Materials, Department of Transportation.

Section II

Important Components

The major component as well as any minor one(s) having potential for harm which are considered when evaluating the product.

Permissible Exposure Concentration

Indicates Threshold Limit Value (TLV), any limit established by a governmental regulatory agency, or an estimate if none have been established.

Section III Health Effects of Exposure

Possible health hazards as derived from human observation, animal studies or from the results of studies with similar products.

Medial Lethal Dose or Concentration (LD50, LC50)

That dose or concentration of the material which will produce death in 50 per cent of test animals. For inhalation, the exposure time is indicated.

Irritation Index

An empirical score for eye and skin irritation when tested by the methods described in Section 1500.40 of the Federal Hazardous Substances Act.

Sensitizer

A substance which will cause on or in normal living tissue, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Section IV Emergency and First Aid Procedures

Gives first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

Section V Personal Protection Information

Eye, Skin, Respiratory

The type of protective equipment that is necessary for the safe handling and use of the product.

Ventilation

Refers to the type recommended: i.e., local exhaust, mechanical, etc.

Section VI Fire Hazard Information

Flash Point (State Method Used)

The temperature in degrees F at which a liquid will give off enough flammable vapor to ignite in the presence of a source of ignition.

Autoignition Temperature

The minimum temperature required for a substance to initiate self combustion in the absence of a spark or flame.

Flammable Limits

The range of gas or vapor concentration (per cent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper the upper flammable limit given in per cent.

Extinguishing Media

Specifies the fire fighting agent(s) that should be used to extinguish fires.

Unusual Fire and Explosion Hazards

Refers to special procedures required if unusual fire hazards are involved.

Section VII Physical Properties and Reactivity Data

Vapor Pressure

The pressure of saturated vapor above the liquid expressed in mm Hg at 20°C.

Viscosity

A measure of the resistive flow of liquid due to gravity or for viscous liquids a measure of the resistance to turning or twisting. State method, units and temperature.

Vapor Density

The relative density or weight of a vapor or gas (with no air present) compared with an equal volume of air at ambient temperature.

pH

The degree of acidity or basicity of the material in specific concentration

Specific Gravity

The ratio of the weight of a volume of the material to the weight of an equal volume of water .

Solubility in Water

The solubility of a material by weight in water at room temperature. The terms negligible, less than 0.1 per cent; slight, 0.1 to 1 per cent; moderate 1 to 10 per cent; appreciable, 10 per cent or greater.

Appearance and Odor

The general characterization of the material, i.e., powder, colorless liquid, aromatic odor, etc.

Hazardous Polymerization

Refers to that reaction which takes place at a rate which releases large amounts of energy. Indicates whether or not it may occur and under what storage conditions.

Materials to Avoid

Indicates those material or conditions causing the product to react violently, releasing large amounts of energy.

Section VIII Storage and Environmental Protection**Procedure in Case of Breakage or Leakage**

Indicates precautions necessary in such events. Includes clean-up procedures and hazards that may be created, i.e., fire, explosions, etc.

Biodegradability/Bioaccumulation

Indicates whether or not the product will biodegrade or bioaccumulate.

The information contained herein is based on data available to us and is believed to be correct. Since this information may have been obtained in part from independent laboratories or other sources not under our direct supervision, no representation is made that the information is accurate, reliable, complete or representative and Buyer may rely thereon only at Buyer's risk. We have made no effort to censor nor to conceal deleterious aspects of this product. Further, since we cannot anticipate or control the many different conditions under which this information or our products may be used, we make no guarantee that the health and safety precautions we have suggested will be adequate for all individuals and/or situations involving its handling and use. Likewise we make no guarantee or warranty of any kind that the use or disposal of this product is in compliance with all federal, state or local laws. It is the obligation of each user of the product mentioned herein to determine and comply with the requirements of all applicable statutes.



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