



Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>2</td></tr><tr><td>Fire Hazard</td><td>3</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	2	Fire Hazard	3	Reactivity	0	 See Section 15.
Health Hazard	2							
Fire Hazard	3							
Reactivity	0							

Section 1. Chemical Product and Company Identification

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Common Name/ Trade Name	Diacetyl	Catalog Number(s).	D2668
		CAS#	431-03-8
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	RTECS	EK2625000
		TSCA	TSCA 8(b) inventory: Diacetyl
Commercial Name(s)	Not available.	CI#	Not available.
Synonym	2,3-Diketobutane; Biacetyl; Dimethyl diketone; Dimethylglyoxal Glyoxal, dimethyl-	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000	
Chemical Name	2,3-Butanedione		
Chemical Family	Not available.		
Chemical Formula	C ₄ H ₆ O ₂		
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		

Section 2. Composition and Information on Ingredients

		Exposure Limits			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Diacetyl	431-03-8				100

Toxicological Data on Ingredients

Diacetyl:

ORAL (LD50): Acute: 1580 mg/kg [Rat]. 990 mg/kg [Guinea pig].
DERMAL (LD50): Acute: >5000 mg/kg [Rabbit].

Section 3. Hazards Identification

Potential Acute Health Effects	Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.
Potential Chronic Health Effects	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, lungs, liver, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	284°C (543.2°F)
Flash Points	CLOSED CUP: 27°C (80.6°F).
Flammable Limits	LOWER: 2.4% UPPER: 13%
Products of Combustion	These products are carbon oxides (CO, CO2).
Fire Hazards in Presence of Various Substances	Highly flammable in presence of open flames and sparks, of heat.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.
Fire Fighting Media and Instructions	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special Remarks on Fire Hazards	Vapors may form explosive mixtures with air. Vapor may travel considerable distance to source of ignition and flash back.
Special Remarks on Explosion Hazards	Not available.

Section 6. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill	Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed.

Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.
Storage	Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Do not store above 8°C (46.4°F). Refrigerate

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Rancid butter odor (Strong.)
Molecular Weight	86.09 g/mole	Taste	Butter
pH (1% soln/water)	Not available.	Color	Yellowish green
Boiling Point	87°C (188.6°F) - 89 C.		
Melting Point	-2.4°C (27.7°F)		
Critical Temperature	Not available.		
Specific Gravity	0.98 - 0.99 (Water = 1)		
Vapor Pressure	7.6 kPa or 58.6 mm Hg (@ 25°C) 39 mm Hg @ 20 deg. C.		
Vapor Density	3 (Air = 1)		
Volatility	Not available.		
Odor Threshold	0.0086 ppm		
Water/Oil Dist. Coeff.	The product is more soluble in water; log(oil/water) = -1.3		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water, acetone.		
Solubility	Easily soluble in acetone. Soluble in cold water. Soluble in about 4 parts of water Water Solubility: 200 g/L @ 15 deg. C. Soluble in carbitols. Readily soluble in all important organic solvents. Miscible in alcohol, ether.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Heat, ignition sources, incompatible materials
Incompatibility with various substances	Reactive with oxidizing agents, reducing agents, acids, alkalis.
Corrosivity	Not available.
Special Remarks on Reactivity	Not available.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 990 mg/kg [Guinea pig]. Acute dermal toxicity (LD50): >5000 mg/kg [Rabbit].
Chronic Effects on Humans	MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: blood, lungs, liver, upper respiratory tract, skin, eyes.
Other Toxic Effects on Humans	Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	May affect genetic material (mutagenic)
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Causes moderate skin irritation. It can be absorbed through the skin. Eyes: Causes eye irritation. May cause chemical conjunctivitis and corneal damage. Vision may become blurred. Inhalation: Harmful if inhaled. Inhalation can cause respiratory tract (nose, throat) irritation causing coughing, wheezing. Inhalation of high concentrations may affect behavior/central nervous system causing headaches, dizziness, drowsiness, seizures/convulsions, lack of coordination, somnolence. It may also cause a feeling of tightness in the chest. Ingestion: May be harmful if swallowed. May cause nausea, vomiting, diarrhea, difficulty breathing (dyspnea), ulceration or bleeding from the stomach. May affect, behavior/central nervous system causing headaches, dizziness, drowsiness, seizures/convulsions, lack of coordination, somnolence, coma. Chronic Potential Health Effects: Ingestion: Prolonged or repeated exposure may damage red blood cells and cause anemia. It may also affect liver, kidneys, and adrenal gland Skin: Prolonged or repeated skin contact may cause allergic skin reaction.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations**Waste Disposal**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information**DOT Classification**

CLASS 3: Flammable liquid.

Identification

: Butanedione UNNA: 2346 PG: II

Special Provisions for Transport

Marine Pollutant

DOT (Pictograms)**Section 15. Other Regulatory Information and Pictograms****Federal and State Regulations**

Pennsylvania RTK: Diacetyl
Massachusetts RTK: Diacetyl
Massachusetts spill list: Diacetyl
New Jersey: Diacetyl
TSCA 8(b) inventory: Diacetyl

California Proposition 65 Warnings

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 207-069-8).
Canada: Listed on Canadian Domestic Substance List (DSL).
China: Listed on National Inventory.
Japan: Listed on National Inventory (ENCS).
Korea: Listed on National Inventory (KECI).
Philippines: Listed on National Inventory (PICCS).
Australia: Listed on AICS.

Other Classifications**WHMIS (Canada)**

The classification of this product has not been validated yet by the Service du repertoire toxicologique. However, it may be classified as:
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC)

R10- Flammable.
R20/22- Harmful by inhalation and if swallowed.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.
R43- May cause sensitization by skin contact.
R48/20- Harmful: danger of serious damage to health by prolonged exposure through inhalation.

S9- Keep container in a well-ventilated place.
S16- Keep away from sources of ignition - No smoking.
S24- Avoid contact with skin.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39- Wear suitable gloves and eye/face protection.
S38- In case of insufficient ventilation, wear suitable respiratory equipment.
S51- Use only in well-ventilated areas.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	3
Reactivity	0
Personal Protection	h

National Fire Protection Association (U.S.A.)

Health

Flammability

Reactivity

Specific hazard

WHMIS (Canada)
(Pictograms)**DSCL (Europe)**
(Pictograms)**TDG (Canada)**
(Pictograms)**ADR (Europe)**
(Pictograms)**Protective Equipment**

Gloves.



Lab coat.



Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information**MSDS Code** B4085**References** Not available.**Other Special Considerations** Uses: carrier of aroma of butter, vinegar, coffee, and other foods; synthetic flavoring substance adjuvant; flavoring agent for oleomargine, candy, baked goods, and chewing gum; chemical intermediate for 2.3-Butanedion 2-oxime; electron-stabilizing compound; antibacterial activity.

Validated by Sonia Owen on 6/28/2012.

Verified by Sonia Owen.

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CALL (310) 516-8000

[Notice to Reader](#)

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.