

BRACCO A-C-D SOLUTION MODIFIED MATERIAL SAFETY DATA SHEET

The author of this Material Safety Data Sheet (MSDS) is Bracco Diagnostics Inc. This MSDS is generated and/or distributed by the Bristol-Myers Squibb Company on behalf of Bracco Diagnostics Inc. Please carefully review all of the information disclosed in this MSDS prior to handling or using the product referenced below.

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Bracco Diagnostics Inc.
P.O. Box 5225
Princeton, NJ 08543

Product Identification: Bracco A-C-D Solution Modified
(Anticoagulant Citrate Dextrose Solution Modified).

1. Chemical Name: For active, sodium citrate, anhydrous: 2-hydroxy-1,2,3-propanetricarboxylic acid, trisodium salt, anhydrous.
2. Synonyms: (For active): sodium citrate, anhydrous; trisodium citrate anhydrous; 2-hydroxy-1,2,3-propanetricarboxylic acid, trisodium salt, anhydrous.
3. How Supplied: Packages of ten 75 mL capacity silicone-coated reaction vials each containing 10 mL anticoagulant solution.
4. Product Use: For use in the radioisotopic labeling of red blood cells with chromium 51.
5. Chemical Family: Citric acid salt.
6. Molecular Formula: C₆H₅O₇.3Na or C₆H₅Na₃O₇.
7. CAS NUMBER: 68-04-2

EMERGENCY CONTACTS: (Health) 1-800-257-5181.
(U.S. Transportation) Chemtrec 1-800-424-9300.
(International Transportation) Chemtrec
1-703-527-3887.

EMERGENCY OVERVIEW: Vials containing anticoagulant solution. See Health Effects and Toxicology sections for additional information.

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS (>1%)	HAZARDOUS (Y/N)	CONCENTRATION (w/w%)	CAS NUMBER	EXPOSURE GUIDELINE
Sodium citrate, (anhydrous)	N	2	68-04-2	Yes
Dextrose, (anhydrous)	N	1	50-99-7	No
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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS (>1%)	HAZARDOUS (Y/N)	CONCENTRATION (w/w%)	CAS NUMBER	EXPOSURE GUIDELINE
Water, USP	N	96	7732-18-5	None

Components present at <1% or used for pH adjustment: citric acid.

SECTION 3: HEALTH HAZARDS IDENTIFICATION

Effects of Overexposure

Routes of Entry:

1. Inhalation: Under normal conditions, this liquid material is handled in closed vials and exposure by inhalation is not expected to occur. However, in a situation where the liquid would be aerosolized, there may be potential for inhalation. The extent of systemic absorption of the material after inhalation is not known.
2. Skin Contact: Exposure may occur via skin contact if gloves and protective clothing are not worn. The extent of systemic absorption of the material after skin contact is not known.
3. Ingestion: Ingestion of large quantities of this material in an occupational setting would not be expected to occur. Ingestion of trace amounts of the material might occur if the material contacts hands and hands are not washed prior to eating, drinking or smoking. The sodium citrate and dextrose are likely to be absorbed after ingestion.

Acute

1. Ingestion: Inadvertent ingestion of trace amounts of this material would not be expected to result in symptoms.
2. Inhalation: Formulation contains some materials that are irritants. Inhaling small amounts of liquid aerosol may result in irritation.
3. 3. Skin Contact:
 - a. Toxic: Contact with small quantities of material for short periods is not expected to result in pharmacologic or toxic effects.
 - b. Irritation: Material contains components that are irritants. It may have potential to cause mild irritation, however, moderate or severe irritation is not expected.
 - c. Sensitization: This material may act as a sensitizer (allergen) for those persons who are allergic to the formulation or components in the formulation.
4. Eye Contact: May cause irritation.

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Chronic

Repeated and prolonged exposure to skin may cause skin irritation.

Exposure Guideline Summary: An exposure guideline has not been established for this material.

Carcinogen Lists IARC: No. NTP: No. OSHA: No.

Target Organs: None known.

Medical Condition Aggravated by Exposure: Kidney disorders, congestive heart failure, pulmonary or peripheral edema or toxemia of pregnancy may be aggravated after ingestion of sodium citrate solutions.

SECTION 4: FIRST AID MEASURES

1. Ingestion: Get medical attention immediately. Vomiting may be induced if a person is conscious and if ingestion has occurred within the past three hours. Never induce vomiting in a person who is unconscious or experiencing convulsions.
 2. Inhalation: Remove exposed person to fresh air. If person is not breathing, give artificial respiration. If breathing is difficult administer oxygen. Get medical attention immediately.
 3. Skin Contact: Remove contaminated clothing. Wash skin with plenty of water for 5 minutes. Seek medical attention if irritation (redness, itching or swelling) develops or persists.
 4. Eye Contact: Hold eyelids apart and flush with plenty of water for 5 minutes. Get medical attention if signs of irritation develop.
 5. Note to physicians: None.
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SECTION 5: FIRE FIGHTING MEASURES

1. Flash Point: Not available.
2. Auto-ignition Temperature: Not available.
3. Flammability Limits:
 - a. LEL: Not applicable.
 - b. UEL: Not applicable.
4. Combustibility of Dusts: Not available.
5. Extinguishing Media: In case of fire, flood with water.
Fire-fighting Instructions: Firefighters should wear self-contained breathing apparatus, flame and chemical resistant clothing, boots and gloves. Evacuate personnel to an upwind direction, remove unneeded material and cool container(s) with \$\$\$

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water from a maximum distance.

Hazardous Combustion Products: Carbon monoxide and carbon dioxide.

6. Unusual Hazards: None.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill/Clean-up: Lab coat, impermeable gloves (latex, latex/nitrile or nitrile) and eye protection should be worn as a minimum precaution. Absorb spill with inert material (e.g. sand, vermiculite or other non-combustible absorbent material) and place into a closed container for reclamation or disposal. The spill area should be ventilated and decontaminated after material has been picked up.

SECTION 7: HANDLING AND STORAGE

Handling Precautions: Avoid skin and eye contact.

1. Container Requirements: Packages of ten 75 mL capacity silicone-coated reaction vials each containing 10 mL anticoagulant solution.
 2. Storage Conditions: Store at room temperature and avoid excess heat.
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SECTION 8: EXPOSURE CONTROLS & PERSONAL PROTECTION

1. Ventilation Requirements: None beyond good room ventilation.
 2. Respiratory Protection: Not anticipated for normal clinical environment. Non-routine exposure conditions may require NIOSH approved respiratory protection appropriate for exposure potential. Self-contained breathing apparatus should be available for emergency use.
 3. Eye Protection: Wear safety glasses (ANSI Z87.1).
 4. Protective Gloves: Wear impervious gloves (latex, latex/nitrile, or nitrile) if the potential exists for dermal contact.
 5. Special Clothing: None.
 6. Hygiene: Wash hands after handling product and before eating, smoking, using lavatory and at the end of the day.
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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

1. Appearance/Physical State/Color: Liquid.
2. Boiling Point: Approximately 100 degrees C.
3. Evaporation Rate: Not available.
4. Flash Point: Not available.

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5. Freezing point/Melting Point: Approximately 0 degrees C.
 6. Octanol/Water Partition Coefficient: Not available.
 7. Odor (threshold): Odorless.
 8. pH: 4.5 to 5.5.
 9. Solubility in Water: Miscible.
 10. Specific Gravity: Not available.
 11. Vapor Density: Not available.
 12. Vapor Pressure: Similar to water.
 13. Viscosity (cP): Similar to water.
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SECTION 10: STABILITY AND REACTIVITY

1. Stability: Filled containers are stable under normal conditions. Shelf-life indicated on individual containers.
 2. Incompatibilities: None known.
 3. Conditions of Reactivity: None known.
 4. Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.
 5. Hazardous Polymerization: None.
 6. Explosion data relative to mechanical impact: No information.
 7. Explosion data relative to static discharge: No information.
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SECTION 11: TOXICOLOGICAL INFORMATION - for active ingredient, sodium citrate.

1. RTECS # (U.S.): GE8300000.
 2. Acute toxicity data:
 - Acute iv LD50 (mouse)= 170 mg/kg;
 - Acute iv LD50 (rabbit)= 449 mg/kg;
 - Acute ip LD50(rat)= 1548 mg/kg;
 - Acute ip LD50(mouse)= 1364 mg/kg.
 3. Chronic:
 - a. Carcinogenicity: No information.
 - b. Mutagenicity: No information.
 - c. Teratogenicity: No information.
 - d. Reproductive Effects: No information.
 - e. Toxicological Synergistic Products: No information.
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SECTION 12: ECOLOGICAL INFORMATION

1. Ecotoxicological Information: Not available.
 2. Chemical Fate Information: Not available.
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SECTION 13: DISPOSAL CONSIDERATIONS

Dispose in accordance with national, state, local or applicable country regulations.

SECTION 14: TRANSPORT INFORMATION

1. Domestic
 - a. Proper Shipping Name: Not classified.
 - b. Hazard Class, UN Number, Packing Group: Not classified.
 - c. Label Requirements: Not applicable.
 - d. Placard Requirements: Not applicable.
 2. International
 - a. Proper Shipping Name: Not classified.
 - b. Hazard Class, UN Number, Packing Group: Not classified.
 - c. Label Requirements: Not applicable.
 - d. Placard Requirements: Not applicable.
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SECTION 15: REGULATORY/STATUTORY INFORMATION (limited to health, safety, environmental)

NOTE: Not meant to be all-inclusive.

1. U.S. Federal: None noted.
 2. International: None noted.
 3. EC Labeling: Not applicable.
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SECTION 16: OTHER INFORMATION

May 25, 2001: New MSDS for Bracco A-C-D Solution Modified was developed by Bracco Diagnostics, Inc.

March 6, 1992: Bristol-Myers Squibb MSDS for A-C-D Solution Modified Squibb.

Diagnostic agents are intended for use under direction of a physician and only under the conditions of use described on the label and in the product's package insert. As a general precaution, personnel who handle these products should avoid contact (ingestion, inhalation, skin and eye contact) with them.

This material safety data sheet is intended for use by personnel who handle this material as part of their job responsibilities and it does not address the diagnostic use of this material. Information concerning the use of this diagnostic agent should be obtained from the product package insert and other appropriate references.

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