



Minntech Corporation
14605 28th Avenue North
Minneapolis, Minnesota 55447-4822 USA
Telephone (763) 553-3300
Fax (763) 553-3387

Dear Customer:

Thank you for interest in the Hemodialysis Acid Concentrate Renapak Product. Enclosed you will find the following MSDS(s):

- Hemodialysis Acid Concentrate Renapak Powder Component
- Hemodialysis Acid Concentrate Renapak Acetic Acid Component
- Hemodialysis Acid Concentrate (Final Product for Renapak)

For the general safety of your employees we feel it is our responsibility to provide to you an individual MSDS for each component of the Renapak and an MSDS of what your final product will become. To insure that you have all the pages, the Powder Component is pages 2-4, the Acetic Acid Component is pages 5-8, and the Final Product is pages 9-11. Also, at the bottom of each sheet there is MSDS part number (50095-008) that identifies both the raw materials used to make this product, and what you will have made as a final product.

We appreciate your business and look forward to serving you in the future.

Sincerely,

The Risk Manager

Section 1. Product and Company Identification

Identification:

Product Name: Hemodialysis Acid Concentrate Renapak Powder Component

Company Identification: Minntech Corp
14605 28th Avenue North
Minneapolis, MN 55447
1-800- 328-3340
(763) 553-3300

Emergency Telephone Number: CHEMTREC 1-800-424-9300, or (703) 527-3887

Section 2. Composition/Information on Ingredients

Component	CAS #	Amount (percentage by Weight)	PEL
Sodium Chloride	7647-14-5		PNOC
Dextrose	50-99-7		PNOC
Calcium Chloride	10043-52-4		PNOC
Potassium Chloride	7447-40-7		PNOC
Magnesium Chloride	7786-30-3		PNOC

The amount (percentage by weight) is specific to the product
PNOC (Particulate Not Otherwise Classified): Respirable Fraction 5mg/m³ and Total Dust 15 mg/m³.

Section 3. Hazards Identification

Appearance: White
Physical State: Powder
Odor: None
Hazards of Product: Non-hazardous

Potential Health Effects

Inhalation: Non-hazardous
Ingestion: Non-hazardous
Skin Contact: Non-irritating
Eye Contact: Can cause irritation to the eyes.

Section 4. First Aid Measures

Eyes and Skin: If irritation should occur to broken or abraded skin, wash with copious amounts of water.

Ingestion: Non-hazardous

Inhalation: Non-hazardous

Section 5. Fire Fighting Measures

Flash Point: N/A
Flammable Limits: N/A
Extinguishing Media: N/A
Unusual Fire and Explosion Hazards: Does not support combustion

Section 6. Accidental Release Measures

If spilled in a dry or powder form, sweep up and do not reuse. If there is a spill in a liquid state, put on the appropriate Personal Protective Equipment and contain the spill. Do not try to reuse the product. Dispose of this product in accordance with all applicable, Federal, State and Local regulations.

Section 7. Handling and Storage

General Handling: Keep container closed when not in use. Store in a dry area between 40-90F. Store unused product in original closed container. Once the product has been removed, do not return to the original container.

Ventilation: Local Exhaust

Section 8. Exposure Controls/Personal Protection

Eyewear: Not required but recommended to be worn.
Gloves: Not required but recommended to be worn.
Clothing: Not required.
Respirator: Not required.

Section 9. Physical and Chemical Properties

Physical State: Powder (Liquid when mixed with other components in Renapak)
Appearance: White (Clear when mixed with other components in Renapak)
pH (as a concentrate): NA
Solubility in Water (By Weight): NA (Complete when mixed with the other components in Renapak)
Odor: None
Molecular Weight: ND
Boiling Point (760 mmHg): ND
Freezing Point: ND
Specific Gravity (H₂O = 1): ND
Vapor Pressure at 20 C: ND
Vapor Density (air = 1): ND
Evaporation Rate (Butyl Acetate = 1): ND
Melting Point: ND

Section 10. Stability and Reactivity

Conditions to Avoid: None Known
Incompatible Materials: None known
Hazardous Polymerization: Will not occur.
Hazardous Decomposition: Will not occur.

Section 11. Toxicological Information

Cancer Related Information:

Ingredient	CAS Numbers	NTP	IARC	OSHA
Sodium Chloride	7647-14-5	Known: NO Anticipated: NO	None	NO
Dextrose	50-99-7	Known: NO Anticipated: NO	None	NO
Calcium Chloride	10043-52-4	Known: NO Anticipated: NO	None	NO
Potassium Chloride	7447-40-7	Known: NO Anticipated: NO	None	NO
Magnesium Chloride	7786-30-3	Known: NO Anticipated: NO	None	NO

Section 12. Ecological Information

Environmental Fate: No information found.

Environmental Toxicity: No information found

Section 13. Disposal Considerations

Dispose of this product in accordance with all applicable, Federal, State and Local regulations.

Section 14. Transport Information

This product is not defined as a hazardous material in accordance with the Department of Transportation.

Section 15. Regulatory Information

International Inventory Status:

Ingredient	CAS Numbers	EC	Japan	Australia	Korea	Canada: DSL	Canada: NDSL
Sodium Chloride	7647-14-5	YES	YES	YES	YES	YES	NO
Dextrose	50-99-7	YES	YES	YES	YES	YES	NO
Calcium Chloride	10043-52-4	YES	YES	YES	YES	YES	NO
Potassium Chloride	7447-40-7	YES	YES	YES	YES	YES	NO
Magnesium Chloride	7786-30-3	YES	YES	YES	YES	YES	NO

United States:

Ingredient	CAS Numbers	OSHA	CAA	CWA	RCRA	SARA 302	SARA 313	TSCA
Sodium Chloride	7647-14-5	NO	NO	NO	NO	NO	NO	NO
Dextrose	50-99-7	NO	NO	NO	NO	NO	NO	NO
Calcium Chloride	10043-52-4	NO	NO	NO	NO	NO	NO	NO
Potassium Chloride	7447-40-7	NO	NO	NO	NO	NO	NO	NO
Magnesium Chloride	7786-30-3	NO	NO	NO	NO	NO	NO	NO

CA Proposition 65: This product is not affected by CA Proposition 65.

WHMIS (Canada): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16. Other Information

NFPA Ratings:

Flammability: 0

Reactivity: 0

Health: 0

Specific Hazard:

Origination Date:

4/11/97

Revision Date:

07-14-06

Prepared by:

Risk Manager

HMIS Ratings:

Flammability: 0

Health: 0

Reactivity: 0

PPE: B

Section 1. Product and Company Identification

Identification:

Product Name: Hemodialysis Acid Concentrate Renapak Acetic Acid Component

Company Identification: Minntech Corp
14605 28th Avenue North
Minneapolis, MN 55447
1-800- 328-3340
(763) 553-3300

Emergency Telephone Number: CHEMTREC 1-800-424-9300

Section 2. Composition/Information on Ingredients

Component	CAS #	Amount (percentage by Weight)	PEL
Acetic Acid	64-19-7	62%	10
Water	7732-18-5	38%	-

PEL(s) represent the OSHA 29 CFR 1910.1000 the eight hour time weighted average (TWA) for Acetic Acid.

Section 3. Hazards Identification

Appearance: Clear
Physical State: Liquid
Odor: Acid
Hazards of Product: Corrosive

Potential Health Effects

Inhalation: Effects from inhalation of mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose.

Ingestion: Swallowing may cause severe burns of mouth, throat, and stomach. Severe scarring of tissue may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure.

Skin Contact: Contact with skin can cause irritation or severe burns.

Eye Contact: Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision

Section 4. First Aid Measures

Eyes and Skin: Flush with excess water at least 15 minutes. If burn or irritation has occurred, seek medical attention. If clothing is contaminated, remove clothing, wash skin and wash clothing before reusing.

Ingestion: If swallowed, drink large amounts of water. Do not attempt to induce vomiting.

Inhalation: If inhaled, move to fresh air.

Section 5. Fire Fighting Measures

Flash Point: 193°F

Flammable Limits: Upper – 16 %
Lower – 4 %

Extinguishing Media: Use carbon dioxide or dry chemical for small fires; alcohol –type aqueous film forming or water spray for large fires.

Unusual Fire and Explosion Hazards: Vapors are potentially explosive, avoid ignition sources and reduce vapors by water spray in case of accidental releases.

Section 6. Accidental Release Measures

Put on eye protection, protective gloves, boots, clothing and a respirator if air contamination is above the permitted levels. Contain the spill and reduce vapors by using water spray. If allowed by federal, state or local regulatory authority, flush spill to the sewer. If mops, towels, paper towel or similar material is used, insure that these items are thoroughly rinsed with copious amounts of water. Do not reuse the liquid material.

Section 7. Handling and Storage

General Handling: Keep container closed when not in use. Store in a dry area between 40-90F. Store unused product in original closed container. Once the product has been removed, do not return to the original container.

Ventilation: Local Exhaust

Section 8. Exposure Controls/Personal Protection

Eyewear: ANSI approved safety glasses or goggles. A face shield should be worn when splashes are likely.

Gloves: Protective gloves should be worn.

Clothing: A protective apron should be worn when splashes are likely. Rubber boots should be used for spill response.

Respirator: If air contamination is above the permitted levels, use an NIOSH approved respirator.

Section 9. Physical and Chemical Properties

Physical State:	Liquid
Appearance:	Clear
pH (undiluted):	1.3
Solubility in Water (By Weight):	Complete
Odor:	Acid
Molecular Weight:	60.05
Boiling Point (760 mmHg):	110 C
Freezing Point:	ND
Specific Gravity (H₂O = 1):	1.051
Vapor Pressure at 20 C:	<11.0
Vapor Density (air = 1):	>1.0
Evaporation Rate (Butyl Acetate = 1):	ND
Melting Point:	ND

Section 10. Stability and Reactivity

Conditions to Avoid: Open flame source

Incompatible Materials: Oxidizing agents (hydrogen peroxide, nitric acid, perchloric acid or chromium trioxide), strong alkalis (sodium hydroxide) or metals.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition: If burned, may produce carbon dioxide.

Section 11. Toxicological Information

Cancer Related Information:

Ingredient	CAS Numbers	NTP	IARC	OSHA
Acetic Acid	64-19-7	Known: NO Anticipated: NO	None	NO
Water	7732-18-5	Known: NO Anticipated: NO	None	NO

Section 12. Ecological Information

Environmental Fate: No information found.

Environmental Toxicity: No information found

Section 13. Disposal Considerations

Dispose of this product in accordance with all applicable Federal, State and Local regulations.

Section 14. Transport Information

NON- Bulk

Proper Shipping Name: Acetic Acid Solution

Hazard Class: Corrosive

UN Number: 2790

Packing Group: II

Section 15. Regulatory Information

International Inventory Status:

Ingredient	CAS Numbers	EC	Japan	Australia	Korea	Canada: DSL	Canada: NDSL
Acetic Acid	64-19-7	YES	YES	YES	YES	YES	NO
Water	7732-18-5	YES	YES	YES	YES	YES	NO

United States:

Ingredient	CAS Numbers	OSHA	CAA	CWA	RCRA	SARA 302	SARA 313	TSCA
Acetic Acid	64-19-7	YES	NO	YES	NO	NO	NO	NO
Water	7732-18-5	YES	NO	NO	NO	NO	NO	NO

CA Proposition 65: This product is not affected by CA Proposition 65.

WHMIS (Canada): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16. Other Information

NFPA Ratings:

Flammability: 2

Health: 2

Reactivity: 1

Specific Hazard: Corrosive

HMIS Ratings:

Flammability: 2

Health: 2

Reactivity: 1

PPE: B

Origination Date: 4/11/97

Revision Date: 07-14-06

Prepared by: Risk Manager

Section 1. Product and Company Identification

Identification:

Product Name: Hemodialysis Acid Concentrate (Final Product for Renapak)
SB – 1000 Series – Renasol® Acid Concentrate
SB - 100 Series – Centrisol® Acid Concentrate

Company Identification: Minntech Corp
14605 28th Avenue North
Minneapolis, MN 55447
1-800- 328-3340
(763) 553-3300

Emergency Telephone Number: CHEMTREC 1-800-424-9300, or (703) 527-3887

Section 2. Composition/Information on Ingredients

Component	CAS #	Amount (percentage by Weight)	PEL
Sodium Chloride	7647-14-5		NE
Dextrose	50-99-7		NE
Calcium Chloride	10043-52-4		NE
Potassium Chloride	7447-40-7		NE
Magnesium Chloride	7786-30-3		NE
Acetic Acid	64-19-7		10
Water	7732-18-5		NE

The amount (percentage by weight) is specific to the SB product

NE: None Established

Section 3. Hazards Identification

Appearance: Clear
Physical State: Liquid
Odor: Vinegar
Hazards of Product: Corrosive

Potential Health Effects

Inhalation: Effects from inhalation may cause mild irritation to the upper respiratory tract. Symptoms may include sneezing, sore throat or runny nose.

Ingestion: Swallowing may cause burns of mouth, throat, and stomach. Symptoms may include bleeding, vomiting, or diarrhea.

Skin Contact: Contact with skin can cause irritation.

Eye Contact: Causes irritation of eyes.

Section 4. First Aid Measures

Eyes and Skin: Flush with excess water at least 15 minutes. If burn or irritation has occurred, seek medical attention. If clothing is contaminated, remove clothing, wash skin and wash clothing before reusing.

Ingestion: If swallowed, drink large amounts of water. Do not attempt to induce vomiting.

Inhalation: If inhaled, move to fresh air.

Section 5. Fire Fighting Measures

Flash Point: N/A
Flammable Limits: N/A
Extinguishing Media: N/A
Unusual Fire and Explosion Hazards: Does not support combustion

Section 6. Accidental Release Measures

Put on eye protection, protective gloves, boots, clothing and a respirator if air contamination is above the permitted levels. Contain the spill. If allowed by federal, state or local regulatory authority, flush spill to the sewer. If mops, towels, paper towel or similar material is used, insure that these items are thoroughly rinsed with copious amounts of water. Do not reuse the liquid material.

Section 7. Handling and Storage

General Handling: Keep container closed when not in use. Store in a dry area between 40-90F. Store unused product in original closed container. Once the product has been removed, do not return to the original container.

Ventilation: Local Exhaust

Section 8. Exposure Controls/Personal Protection

Eyewear: ANSI approved safety glasses or goggles. A face shield should be worn when splashes are likely.
Gloves: Protective gloves should be worn.
Clothing: A protective apron should be worn when splashes are likely. Rubber boots should be used for spill response.
Respirator: If air contamination is above the permitted levels, use a NIOSH approved respirator.

Section 9. Physical and Chemical Properties

Physical State: Liquid
Appearance: Clear
pH (as a concentrate): 2-3
Solubility in Water (By Weight): Complete
Odor: Vinegar like
Molecular Weight: ND
Boiling Point (760 mmHg): ND
Freezing Point: ND
Specific Gravity (H₂O = 1): 1.2
Vapor Pressure at 20 C: ND
Vapor Density (air = 1): 1
Evaporation Rate (Butyl Acetate = 1): ND
Melting Point: ND

Section 10. Stability and Reactivity

Conditions to Avoid: None Known
Incompatible Materials: Bases and corrosive to metals.
Hazardous Polymerization: Will not occur.
Hazardous Decomposition: Will not occur.

Section 11. Toxicological Information

Hemodialysis Acid Concentrate as a product was tested and determined not to be toxic to humans.

Cancer Related Information:

Ingredient	CAS Numbers	NTP	IARC	OSHA
Sodium Chloride	7647-14-5	Known: NO Anticipated: NO	None	NO
Dextrose	50-99-7	Known: NO Anticipated: NO	None	NO
Calcium Chloride	10043-52-4	Known: NO Anticipated: NO	None	NO
Potassium Chloride	7447-40-7	Known: NO Anticipated: NO	None	NO
Magnesium Chloride	7786-30-3	Known: NO Anticipated: NO	None	NO
Acetic Acid	64-19-7	Known: NO Anticipated: NO	None	NO
Water	7732-18-5	Known: NO Anticipated: NO	None	NO

Section 12. Ecological Information

Environmental Fate: No information found.

Environmental Toxicity: No information found

Section 13. Disposal Considerations

Dispose of this product in accordance with all applicable Federal, State and Local regulations.

Section 14. Transport Information

This product is not defined as a hazardous material in accordance with the Department of Transportation.

Section 15. Regulatory Information

International Inventory Status:

Ingredient	CAS Numbers	EC	Japan	Australia	Korea	Canada: DSL	Canada: NDSL
Sodium Chloride	7647-14-5	YES	YES	YES	YES	YES	NO
Dextrose	50-99-7	YES	YES	YES	YES	YES	NO
Calcium Chloride	10043-52-4	YES	YES	YES	YES	YES	NO
Potassium Chloride	7447-40-7	YES	YES	YES	YES	YES	NO
Magnesium Chloride	7786-30-3	YES	YES	YES	YES	YES	NO
Acetic Acid	64-19-7	YES	YES	YES	YES	YES	NO
Water	7732-18-5	YES	YES	YES	YES	YES	NO

United States:

Ingredient	CAS Numbers	OSHA	CAA	CWA	RCRA	SARA 302	SARA 313	TSCA
Sodium Chloride	7647-14-5	NO	NO	NO	NO	NO	NO	NO
Dextrose	50-99-7	NO	NO	NO	NO	NO	NO	NO
Calcium Chloride	10043-52-4	NO	NO	NO	NO	NO	NO	NO
Potassium Chloride	7447-40-7	NO	NO	NO	NO	NO	NO	NO
Magnesium Chloride	7786-30-3	NO	NO	NO	NO	NO	NO	NO
Acetic Acid	64-19-7	YES	NO	YES	NO	NO	NO	NO
Water	7732-18-5	YES	NO	NO	NO	NO	NO	NO

CA Proposition 65: This product is not affected by CA Proposition 65.

WHMIS (Canada): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16. Other Information

NFPA Ratings:

Flammability: 0
Health: 2
Reactivity: 0
Specific Hazard: Corrosive

HMIS Ratings:

Flammability: 0
Health: 2
Reactivity: 0
PPE: B

Origination Date: 4/11/97
Revision Date: 7-14-06
Prepared By: Risk Manager