



# Hartmann's Solution for Injection

AVAILABLE from Dechra Veterinary Products in 3000 mL and 5000 mL Bags



## What is Vetivex Hartmann's?

Vetivex Hartmann's Solution for Injection is a sterile, nonpyrogenic, isotonic crystalloid solution for fluid and electrolyte replenishment. Vetivex Hartmann's has an electrolyte profile similar to Lactated Ringer's Solution. Lactated Ringer's Solution (LRS) is a modification of Hartmann's Solution and many references discuss their clinical use and clinical effects as if they are the same, including DiBartola's textbook on fluid therapy. Both Vetivex Hartmann's Solution and LRS are balanced electrolyte solutions, with electrolyte profiles similar to plasma, that also contain lactate.

## How does Vetivex Hartmann's compare to LRS?

Vetivex Hartmann's has a slightly higher concentration of sodium, potassium, calcium, chloride and lactate. The osmolarity is very similar.

	Vetivex Hartmann's Solution (mEq/L)	Lactated Ringer's (mEq/L)
Sodium	131	130
Potassium	5	4
Calcium	4	3
Chloride	111	109
Lactate	29	28
Osmolarity	278 mOsmol/Liter	273 mOsmol/Liter



Dechra's Vetivex Hartmann's Solution is now available in 3000 mL and 5000 mL bags. The 3000 mL and 5000 mL bags have color coded ports for easy identification. Vetivex Hartmann's Solution 5000 mL bags have three ports: two identical, dual purpose ports for insertion of the administration set spike and a third port for injections only.

## Why does Vetivex Hartmann's contain lactate?

The addition of lactate helps address conditions of metabolic acidosis by mimicking the body's normal level of bicarbonate ion and providing the body with a readily available source of bicarbonate. Metabolism of lactate by the liver consumes hydrogen ions and generates bicarbonate, and thus has an alkalinizing effect.

**TO ORDER, CALL YOUR DECHRA OR DISTRIBUTOR REP OR CALL (866) 683-0660.**  
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## Hartmann's Solution for Injection

For Animal Use Only

**Description:** Hartmann's Solution is a sterile, nonpyrogenic solution for fluid and electrolyte replenishment in single dose containers for parenteral administration. It contains no antimicrobial agents. Discard unused portions.

**Table 1:** Hartmann's Solution for Injection

Size (mL)	Composition (mg/100mL)					pH	Ionic Concentration (mEq/L)				
	Sodium Chloride, USP (NaCl)	Sodium Lactate, USP (C <sub>3</sub> H <sub>5</sub> NaO <sub>3</sub> )	Potassium Chloride, USP (KCl)	Calcium Chloride Dihydrate, USP (CaCl <sub>2</sub> • 2H <sub>2</sub> O)	Osmolality (mOsmol/L) (Calculated)		Sodium	Potassium	Calcium	Chloride	Lactate
3000 5000	600	317	40	27	278	6.5 (5.0 to 7.0)	131	5	4	111	29

### Clinical Pharmacology:

Hartmann's Solution for Injection has value as a source of water and electrolytes. It is capable of inducing diuresis depending on the clinical condition of the patient.

Hartmann's Solution for Injection produces a metabolic alkalizing effect. Lactate ions are metabolized ultimately to carbon dioxide and water, which requires the consumption of hydrogen cations.

### Indications and Usage:

Hartmann's Solution for Injection is indicated as a source of water and electrolytes or as an alkalizing agent.

### Warnings:

Do not administer to horses by intraperitoneal injection.

Hartmann's Solution for Injection should be used with great care, if at all, in patients with congestive heart failure, severe renal insufficiency, and in clinical states in which there exists edema with sodium retention.

Hartmann's Solution for Injection should be used with great care, if at all, in patients with hyperkalemia, severe renal failure, and in conditions in which potassium retention is present.

Hartmann's Solution for Injection should be used with great care in patients with metabolic or respiratory alkalosis. The administration of lactate ions should be done with great care in those conditions in which there is an increased level or an impaired utilization of these ions, such as severe hepatic insufficiency.

Hartmann's Solution for Injection should not be administered simultaneously with blood through the same administration set because of the likelihood of coagulation.

The parenteral administration of Hartmann's Solution for Injection can cause fluid and/or solute overloading resulting in dilution of serum electrolyte concentrations, overhydration, congested states, or pulmonary edema. The risk of dilutional states is inversely proportional to the electrolyte concentrations of the injections. The risk of solute overload causing congested states with peripheral and pulmonary edema is directly proportional to the electrolyte concentrations of the injection.

In patients with diminished renal function, administration of Hartmann's Solution for Injection may result in sodium or potassium retention.

Hartmann's Solution for Injection is not for use in the treatment of lactic acidosis.

### Adverse Reactions:

Reactions which may occur because of the solution or the technique of administration include febrile response, infection at the site of injection, venous thrombosis or phlebitis extending from the site of injection, extravasation, and hypervolemia. If an adverse reaction does occur, discontinue the infusion, evaluate the patient, institute appropriate therapeutic countermeasures, and save the remainder of the fluid for examination if deemed necessary.

### Precautions:

Clinical evaluation and periodic laboratory determinations are necessary to monitor changes in fluid balance, electrolyte concentrations, and acid base balance during prolonged parenteral therapy or whenever the condition of the patient warrants such evaluation.

Hartmann's Solution for Injection must be used with caution. Excess administration may result in metabolic alkalosis.

Do not administer unless solution is clear and seal is intact.

Reactions which may occur because of the solution or the technique of administration include febrile response, infection at the site of injection, venous thrombosis or phlebitis extending from the site of injection, extravasation, and hypervolemia.

If an adverse reaction does occur, discontinue the infusion, evaluate the patient, institute

appropriate therapeutic countermeasures, and save the remainder of the fluid for examination if deemed necessary.

### Dosage and Administration:

As directed by a veterinarian. Dosage is dependent upon the age, weight and clinical condition of the patient, as well as laboratory determinations.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration whenever solution and container permit.

All solutions for injection contained in plastic containers are intended for administration using sterile equipment and aseptic technique.

Additives may be incompatible. Complete information is not available. Those additives known to be incompatible should not be used. Consult with pharmacist, if available. If, in the informed judgment of the veterinarian, it is deemed advisable to introduce additives, use aseptic technique. Mix thoroughly when additives have been introduced. Do not store solutions containing additives. Discard unused portion.

### Overdosage:

In an event of overhydration or solute overload, re-evaluate the patient and institute appropriate corrective measures.

See Warnings, Adverse Reactions and Precautions.

### How Supplied:

Hartmann's Solution for Injection is supplied in plastic bags as follows:

NDC Code	Volume
17033-482-03	3000 mL*
17033-482-05	5000 mL*

\* Latex Free Bag. The plastic container is fabricated from a specially formulated polyvinyl chloride. The amount of water that can permeate from inside the container into the overwrap is insufficient to affect the solution significantly. Solutions in contact with the plastic container can leach out certain of its chemical components in very small amounts within the expiration period, e.g., di-2-ethylhexyl phthalate (DEHP), up to 5 parts per million. However, the safety of the plastic has been confirmed in animals according to USP biological tests for plastic containers, as well as tissue culture toxicity studies.

**STORAGE:** Exposure of pharmaceutical products to heat should be minimized. Avoid excessive heat. It is recommended the product be stored in the moisture barrier overwrap at room temperature (25°C/77°F); brief exposure up to 40°C/104°F does not adversely affect the product.

### Directions for use of plastic container

#### To Open

Tear overwrap down side at slit and remove solution bag. Some opacity of the plastic due to moisture absorption during the sterilization process may be observed. This is normal and does not affect the solution quality or safety.

The opacity will diminish gradually. Check for minute leaks by squeezing inner bag firmly. If leaks are found, discard solution as sterility may be impaired.

If supplemental medication is desired, follow directions below.

#### Preparation for Administration

1. Suspend container from eyelet support.
2. Remove protector from outlet port at bottom of container.
3. Attach administration set. Refer to complete directions accompanying set.

#### To Add Medication

##### WARNING: Additives may be incompatible.

##### To add medication before solution administration

1. Prepare medication site.
2. Using syringe with 19 to 22 gauge needle, puncture resealable medication port and inject.
3. Mix solution and medication thoroughly. For high density medication such as potassium chloride, squeeze ports while ports are upright and mix thoroughly.

##### To add medication during solution administration

1. Close clamp on the administration set to stop the flow to the patient.
2. Prepare medication site.
3. Using syringe with 19 to 22 gauge needle, puncture resealable medication port and inject.
4. Remove container from IV pole and/or turn to an upright position.
5. Evacuate both ports by squeezing them while container is in the upright position.
6. Mix solution and medication thoroughly.
7. Return container to in-use position and continue administration.

**CAUTION: Federal law (U.S.A.) restricts this drug to use by or on the order of a licensed veterinarian.**

TAKE  
TIME



OBSERVE LABEL  
DIRECTIONS

### DISTRIBUTED BY:

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