ALBERTA PRECISION LABORATORIES
Leaders in Laboratory Medicine

# Albumin (Human) 5%

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| **APPLICABILITY:** This document applies to APL, AHS, Covenant Health, and all other health care professionals involved in the transfusion of blood components and products in Alberta. | ***Other Names:*** *Plasbumin®-5, Alburex®-5, Albumin®*<br>***Company:*** *Grifols Canada Ltd, CSL Behring*<br>***Class:*** *Manufactured product, derived from human plasma* |

In the event of discrepancy between APL Monograph and Manufacturer's documentation or patient resources, the APL Monograph will take precedence

| | INTRAVENOUS | | | OTHER | | |
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| **ROUTES** | **DIRECT IV** | **IV Infusion** | **Continuous Infusion** | **SC** | **IM** | **OTHER** |
| **Acceptable Routes*** | Yes*** | Yes | Yes | Yes** | No | N/A |

* Administration of blood components and blood products is a restricted activity. For specific conditions that apply to a profession's authorization to administer blood components and blood products, consult the applicable discipline-specific regulation under the Health Professions Act (Alberta). Health care professionals with this authorization require the applicable education, training and competency.
**Although not indicated by the manufacturer monograph, the authorized prescriber may indicate subcutaneous (SC) administration due to the patient's venous access or condition.
*** Direct IV administration of blood products may be performed by health care professionals that have authorization of administration of blood products within their scope of practice.

## DESCRIPTION:

- Albumin is a sterile aqueous solution prepared from pooled human plasma, with a physiological pH (6.4 to 7.4) and contains approximately 130-160 mEq/L of sodium.
- Albumin is a clear, slightly viscous liquid which can range from almost colorless to yellow, amber, or green.
- Plasbumin®-5% and Albumin®-5% are iso-oncotic with normal plasma and Alburex-5% is mildly hypo-oncotic with normal plasma.
- Low Albumin content (≤ 200µg/L).
- Albumin is preservative free and contains sodium caprylate and acetyltrpyophan as stabilizers.
- 5% Albumin is available in vial sizes of 50 mL (2.5 g Albumin), 250 mL (12.5 g Albumin) and 500 mL (25g Albumin).
- Albumin is also available in a concentration of 25%. (See separate blood product monograph).

## AVAILABILITY:

- Supplied by Canadian Blood Services.
- Contact your local laboratory/transfusion service regarding stock availability on site.

## INDICATIONS FOR USE:

- Used to restore and maintain circulating blood volume when the use of a colloid is clinically appropriate.
- Primarily used in the treatment of shock associated with hemorrhage, surgery, trauma, burns and bacteremia.
- 5% albumin can be used in conditions with a volume deficit alone (25% albumin is the product of choice if an oncotic deficit exists).
- Refer to the AHS Critical Care Strategic Clinical Network Albumin for Resuscitation Decision Support Tool: Adult Critical Care.
- On a case-by-case basis, arrangements may be made for reconstitution of certain medications with albumin. These **must** be approved by a Transfusion Medicine Physician.
- Current medical literature recommends guidelines be observed to ensure appropriate use of IV Albumin. For more information on these recommendations refer to: Use of Intravenous Albumin - CHEST (chestnet.org) .

## CONTRAINDICATIONS:

- Known hypersensitivity to albumin or to any of the constituents of its formulation.
- 5% Albumin should be used with caution in conditions where hypervolemia and/or hemodilution could represent a special risk for the patient or patients at risk of developing circulatory overload, including:
  - Decompensated cardiac insufficiency.
  - Hypertension.
  - History of congestive cardiac failure.
  - Esophageal varices.
  - Pulmonary edema.
  - Hemorrhagic diathesis.
  - Severe anemia or stabilized chronic anemia.
  - Renal and post-renal anuria.
  - Renal insufficiency.

- In chronic nephrosis, Albumin administration **is not indicated.**
- Current medical literature recommends guidelines be observed to ensure appropriate use of IV Albumin. For more information on these recommendations refer to: Use of Intravenous Albumin - CHEST (chestnet.org).

**WARNINGS:**

- **Do not** dilute with sterile water, as this can cause potentially fatal hemolysis and acute renal failure**.**
- Patients must be monitored to guard against circulatory overload and hyperhydration.
- Hypervolemia may occur if the dosage and infusion rate are not adjusted to the patient's circulatory situation.

**DOSE:**

- Dose to be determined by the most responsible health practitioner (MHRP).
- Dose should be adjusted based on patient's body weight, severity of treated condition and estimated fluid and protein loss as determined by monitoring hemodynamic parameters, circulating volume and plasma protein levels, to avoid complications related to potential hypervolemia.
- 5% Albumin will expand the circulating blood volume by an amount approximately equal to the volume infused in an adequately hydrated patient.

**ADMINISTRATION:**

If subcutaneous infusion is required, detailed administration instructions including dose, rate, supplies, and monitoring must be provided by the MRHP.

***Confirm signed consent has been obtained and documented prior to requesting blood components or products (human-source) from lab/transfusion service where possible.***

**Pre-Infusion:**

- Ensure recent patient weight is on file and pertinent labs are available. Perform the appropriate pre-transfusion checks per nursing protocol.
- Visually inspect the vial and product. Do not use if solution is discolored, frozen; or if vial is cracked/damaged, or contains glass and/or cork material in the solution.

**Access:**

- Product can be given via peripheral or central venous access site. Off-label subcutaneous infusion may be performed if requested by the MRHP.

**Compatible Solutions:**

- Standard isotonic carbohydrate and electrolyte solutions (ex. D5W, RL, 2/3-1/3).
- 0.9% normal saline
- **Do not** mix with protein hydrolysates, amino acid solutions, or solutions containing alcohol.
- **Do not** mix with packed red blood cells or reconstituted whole blood.
- **Do not** pre-dilute any albumin solutions with sterile water for injection. This results in a substantial reduction in tonicity, which increases the risks for potentially fatal hemolysis and acute renal failure.

**Administration Supplies:**

- Administer via a vented set.
- **Note:** If the patient requires a filter, a 0.2-micron filter or larger must be used.

**Administration**

- Spike perpendicular to the plane of the stopper (i.e. at 90° angle) within the stopper area delineated by the raised ring to decrease the potential of pushing the stopper into the albumin vial.
- A single vial may be entered multiple times for the same patient.
- Do not share vials between patients.
- Once vial is entered, contents must be infused within 4 hrs.
- Flush set with compatible solution after completion to ensure entire dose is administered.
- **Intermittent Infusion:**
  - Change infusion set at minimum, every 8 hours.
- **Continuous Infusion:**
  - Change infusion set every 24 hours.
- **Administration rate:**
  - Administration rate should be specified by the MRHP after patient assessment.
  - MRHP should document the rationale for administration rates exceeding the maximum recommended rate.
  - Maximum recommended rate: 5 mL/min.

**NURSING IMPLICATIONS:**

**Patient Monitoring**:

- Vital Signs: Pre-administration**,** on completion of dose, and as patient condition requires.
- If the patient has experienced previous adverse reaction to product transfusion, or this is the first transfusion of product for patient, monitor for 30-60 minutes post.

Patients receiving blood product transfusions must be observed closely for signs of any unexpected or untoward reactions. These reactions may occur during or after the infusion of blood or blood products. For follow up to a transfusion reaction see Transfusion Reactions | Alberta Health Services. Notify the transfusion service as soon as possible that an adverse reaction has occurred.

**Documentation:**

- Ensure documentation is completed as per the AHS Transfusion of Blood Components and Products Policy.
- Start and stop time of infusion and assessment of patient tolerability should be documented in appropriate flow chart or clinical record (electronic or paper).
- Document vital signs as required in the appropriate flow chart or clinical record (electronic or paper).
- Provide patient notification of transfusion documentation where required.

**Laboratory Monitoring:**

- Monitor closely for circulatory overload, this may include:
  - Arterial blood pressure and pulse rate
  - Central venous pressure
  - Pulmonary artery wedge pressure
  - Urine output
  - Electrolyte
  - Hematocrit/hemoglobin
- Blood coagulation parameters, hematocrit, and serum electrolytes should be monitored when a large volume of 25% albumin is administered.

**POTENTIAL HAZARDS WITH PARENTERAL ADMINISTRATION:**

- Potential adverse events related to a blood product transfusion range in severity from minor with no sequelae to life-threatening.
- All adverse events occurring during a transfusion should be evaluated to determine whether or not the transfusion can be safely continued/restarted.
- All adverse events suspected to be related to a product transfusion (whether during or after a transfusion) must be reported to your local transfusion service.
- The most commonly reported adverse reactions in patients receiving albumin are allergic in nature or due to high plasma protein levels from excessive or rapid albumin administration.
- Hypervolemia may occur if the dosage and rate of infusion are too high.

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| **Side Effects**<br>- Flushing<br>- Headache<br>- Nausea<br>- Itching and redness at the venipuncture site | → | **Action:**<br>Slow rate of infusion |
| **Potential Allergic Reaction**<br>- Stuffy nose<br>- Hives/severe itching<br>- Cough<br>- Chest pain<br>- Wheezing<br>- Facial swelling<br>- Fainting | → | **Action:**<br>**STOP** infusion **IMMEDIATELY** and contact physician |

**STORAGE & STABILITY:**

- 5% Albumin is stored at 2-30°C. Keep away from light.
- Do not freeze.
- Shelf life is 2-5 years depending on manufacturing process. Expiration date is printed on box and vial.
- Do not use expired product.

**CONTACT INFORMATION:**

Approved By: APL Transfusion Medicine Discipline Council

*For questions or comments please contact: Transfusion.SafetyTeam@aplabs.ca*

**REFERENCES:**


Grifols Canada Ltd. 25 Jan 2018. Albumin (human) 5% Solution, USP Product Monograph. Submission Control No. 202697 & Level 3 change. [accessed 10Jul24]. https://www.staticweb.grifols.com/documents/3836559/0/Albumin+5+CBS+-+English+PM+-+2017-08-22.pdf/e73fb53e-b218-42e3-ade4-ee18bf0a71f7

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