

**BSS PLUS®**  
**STERILE IRRIGATING SOLUTION**

(balanced salt solution enriched with bicarbonate, dextrose, and glutathione)

**DESCRIPTION:** BSS PLUS® is a sterile intraocular irrigating solution for use during all intraocular surgical procedures, including those requiring a relatively long intraocular perfusion time (e.g., pars plana vitrectomy, phacoemulsification, extra capsular cataract extraction/lens aspiration, anterior segment reconstruction, etc.). The solution does not contain a preservative and should be prepared just prior to use in surgery.

**Part I:** Part I is a sterile 480 mL solution in a 500 mL single-dose bag to which the Part II concentrate is added. Each mL of Part I contains: sodium chloride 7.44 mg, potassium chloride 0.395 mg, dibasic sodium phosphate 0.433 mg, sodium bicarbonate 2.19 mg, hydrochloric acid and/or sodium hydroxide (to adjust pH), in water for injection.

**Part II:** Part II is a sterile concentrate in a 20 mL single-dose vial for addition to Part I. Each mL of Part II contains: calcium chloride dehydrate 3.85 mg, magnesium chloride hexahydrate 5 mg, dextrose 23 mg, glutathione disulfide (oxidized glutathione) 4.6 mg, in water for injection.

After addition of BSS PLUS® solution Part II to the Part I bag, each mL of the reconstituted product contains: sodium chloride 7.14 mg, potassium chloride 0.38 mg, calcium chloride dehydrate 0.154 mg, magnesium chloride hexahydrate 0.2 mg, dibasic sodium phosphate 0.42 mg, sodium bicarbonate 2.1 mg, dextrose 0.92 mg, glutathione disulfide (oxidized glutathione) 0.184 mg, hydrochloric acid and/or sodium hydroxide (to adjust pH), in water for injection.

The reconstituted product has a pH of approximately 7.4. Osmolality is approximately 305 mOsm.

**CLINICAL PHARMACOLOGY:** None of the components of BSS PLUS solution are foreign to the eye, and BSS PLUS solution has no pharmacological action. Human perfused cornea studies have shown BSS PLUS solution to be an effective irrigation solution for providing corneal detumescence and maintaining corneal endothelial integrity during intraocular perfusion. An in vivo study in rabbits has shown the BSS PLUS solution is more suitable than normal saline or Balanced Salt Solution for intravitreal irrigation because BSS PLUS solution contains the appropriate bicarbonate, pH, and ionic composition necessary for the maintenance of normal retinal electrical activity. Human in vivo studies have demonstrated BSS PLUS solution to be safe and effective when used during surgical procedures such as pars plan vitrectomy, phacoemulsification, cataract extraction/lens aspiration, anterior segment reconstruction. No differences have been observed between adults and pediatric patients following use of this drug product.

**INDICATIONS AND USAGE:** BSS PLUS solution is indicated for use as an intraocular irrigating solution during intraocular surgical procedures involving perfusion of the eye.

**CONTRAINDICATIONS:** There are no specific contraindications to the use of BSS PLUS solution; however, contraindications for the surgical procedure during which BSS PLUS solution is to be used should be strictly adhered to.

**WARNINGS:** For IRRIGATION during ophthalmic surgery only. Not for injection or intravenous infusion. Do not use unless product is clear, seal is intact and container is undamaged. Do not use if product is discolored or contains a precipitate.

**PRECAUTIONS:** **DO NOT USE BSS PLUS solution UNTIL PART I IS FULLY RECONSTITUTED WITH PART II.** Discard unused contents. BSS PLUS does not contain a preservative; therefore, do not use this container for more than one patient. **DISCARD ANY UNUSED PORTION SIX HOURS AFTER PREPARATION.** Studies suggest that intraocular irrigating solutions which are iso-osmotic with normal aqueous fluids should be used with caution in diabetic patients undergoing vitrectomy since intraoperative lens changes have been observed.

There have been reports of corneal clouding or edema following ocular surgery in which BSS PLUS solution was used as an irrigating solution. As in all surgical procedures appropriate measures should be taken to minimize trauma to the cornea and other ocular tissues.

**Preparation:** Reconstitute **BSS PLUS** Intraocular Irrigating Solution just prior to use in surgery. Follow the same strict aseptic procedures in the reconstitution of **BSS PLUS** solution as used for intravenous additives. **Remove the BSS PLUS solution Part I (480 mL) bag from the clear overwrap. Remove the blue flip-off seal from the BSS PLUS solution Part II (20 mL) vial. Clean and disinfect the rubber stoppers on both containers by using sterile alcohol wipes. Transfer the contents of the Part II vial to the Part I bag using a BSS PLUS solution Dual-Spike Transfer Device (provided).** An alternative method of solution transfer may be accomplished by using a 20 mL syringe to remove the Part II solution from the vial and transferring exactly 20 mL to the Part I container through the outer target area of the rubber stopper. An excess volume of Part II is provided in each vial. Gently agitate the contents to mix the solution. Place a sterile cap on the bag. Record the time and date of reconstitution and the patient's name on the bag label.

**Geriatric Use:** No overall differences in safety or effectiveness have been observed between elderly and younger patients.

**ADVERSE REACTIONS:** Postoperative inflammatory reactions as well as incidents of corneal edema and corneal decompensation have been reported. Their relationship to the use of BSS PLUS solution has not been established.

**OVERDOSAGE:** The solution has no pharmacological action and thus no potential for overdosage. However, as with any intraocular surgical procedure, the duration of intraocular manipulation should be kept to a minimum.

**DOSAGE AND ADMINISTRATION:** The solution should be used according to the standard technique employed by the operating surgeon. For non-active irrigating system, use an administration set with an air-inlet in the plastic spike since the bag does not contain a separate airway tube. Follow the directions for the particular administration set to be used. Insert the spike aseptically into the bag through the center target area of the rubber stopper. Allow the fluid to flow to remove air from the tubing before intraocular irrigation begins.

**HOW SUPPLIED:** BSS PLUS Solution is supplied in two packages for reconstitution prior to use: a 500 mL bag containing 480 mL (Part I) and a 20 mL glass vial (Part II); both using grey butyl stoppers and aluminum seals. See the PRECAUTIONS section regarding reconstitution of the solution.

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**Storage:** Store Part I and Part II at 2° - 25°C (36° - 77°F). DO NOT FREEZE. Discard prepared solution after six hours.

**Rx Only**

## RECONSTITUTION INSTRUCTIONS

### **DIRECTIONS:** Use Aseptic Technique

1. Remove the BSS PLUS® solution Part I (480 mL) bag from the clear overwrap. Remove the blue flip- off seal from the BSS PLUS® solution Part II (20 mL) vial. Prepare the stoppers on both parts by using sterile alcohol wipes.
2. Peel open a BSS PLUS® solution Dual-Spike Transfer Device package (supplied) and remove the sterile transfer spike. NOTE: This device is vented permitting air to enter vial during solution transfer, thereby preventing the creation of a vacuum inside the vial.
3. Remove protector from the white plastic piercing pin of the Dual-Spike Transfer Device.
4. Firmly grasp device from behind the flange and insert the white plastic piercing pin into the upright rubber stopper of the BSS PLUS® solution Part II (20 mL) vial.
5. Remove guard from filter needle. Firmly grasp vial in the palm of one hand and with thumb and index finger, hold plastic flange against top of vial.
6. Hold the vial in the upright position, incline and immediately insert the transfer device into the center target of rubber stopper of the BSS PLUS® solution Part I (480 mL) bag. (See illustration.) Note: Do not invert Part II (20 ml) vial before or during spiking of the BSS PLUS® solution Part I bag rubber stopper, until ready to initiate transfer.
7. Invert vial to initiate the transfer of Part II into Part I. If transfer does not occur immediately, gentle manipulation of the bag can initiate transfer. NOTE: An excess amount of BSS PLUS® solution Part II is provided in each vial. A non-transferred solution residual of approximately 0.3 mL can be expected to remain in the vial.
8. Immediately remove vial (with spike attached) from the BSS PLUS® solution Part I container and discard it after solution transfer has been completed.
9. Place a sterile safety cap over the rubber stopper of Part I if the solution is not going to be used immediately. Mix the solution gently until uniform. Record the patient's name and the date and time of reconstitution. BSS PLUS® solution is now ready for use.

**CAUTION: Reconstituted BSS PLUS® solution must be used within six hours of mixing.**

**Discard any solution which has aged beyond that time. Never use the same bag of BSS PLUS® solution on more than one patient.**

### **Alternative Transfer Method**

If preferred, the contents of the BSS PLUS® Part II component may be aspirated with an 18-gauge cannula attached to a 20 mL syringe and then transferred into the Part I bag.

