Worldwide presence

Since 2002, over 3 million units of Macopharma Platelets Additive Solution have been distributed worldwide.

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SSP+ is a CE marked medical device. It is not available for sale in the United States. Please refer to the Instructions for Use.
Platelet concentrates (PC) are notably used for the prevention and treatment of bleeding complications in thomboctopenic patients. Therefore platelet quality, function, storage stability, morphology and cell integrity needs to be well maintained during processing and storage. Platelet Additive Solution SSP + (PAS III-M* generation) was developed to improve storage stability of Buffy-coat and apheresis PCs for up to seven days. The possible ratio is up to 80% SSP + / 20% plasma.

**What are they for?**

*Effects on Platelet metabolism*
- Phosphate: Stimulates glycolysis to produce more lactate acid, acts as a buffer to prevent fall in pH, and is of importance in maintaining good in vitro characteristics during interruption of agitation.
- Acetate: acetate is used as a substrate for platelet metabolism, it reduces production of lactate by platelets and by formation of bicarbonate, and it maintains stable pH levels during storage of platelet concentrates.

*Effects on the function of Platelet membrane*
- Citrate: prevention of coagulation.
- Magnesium: prevention of aggregation, reduction of platelet-derived cytokines, reduces activation of platelets.
- Potassium: prevention of aggregation, reduces activation of platelets, reduces glycolysis (reduced glucose consumption & lactate production), better maintenance of pH levels.

**Benefits**

- **Clinical benefits:**
  - Reduction of discard-rate due to expiry: compatibility with extended platelet shelf life up to 7 days.
  - Having a large volume of available plasma as a transfusable product or for fractionation.
  - Compatibility with all technologies for preparation of platelet products as e.g., automated devices for whole blood and apheresis derived platelets.
- **Logistical benefits:**
  - Reduction of discard-rate due to expiry: up to 80% SSP + vs 20% plasma.
  - Logistical benefits: detection. Reduces biofilm-formation in platelet concentrates while improving bacteria distribution which attach on the surface of the bag container evading detection by sampling. PAS reduces biofilm-formation in platelet concentrates while improving bacteria distribution in contaminated PCs. This might be associated with increased availability of bacteria for detection.

**Specifications**

- 2 years shelf-life
- Polyolefin bag (Non-PVC)
- Barcode
- 2 connections mode available: tubing for sterile connection, luer lock for easy connection to apheresis kits
- Medical Device Class III
- Steam sterilised
- Available volume: 250, 280, 300, 500 mL

**SSP + Formulation in mmol/L**

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Citrate</td>
<td>69.3</td>
</tr>
<tr>
<td>Citrate</td>
<td>10.8</td>
</tr>
<tr>
<td>Acetate</td>
<td>32.5</td>
</tr>
<tr>
<td>Phosphate</td>
<td>28.2</td>
</tr>
<tr>
<td>Potassium</td>
<td>5.0</td>
</tr>
<tr>
<td>Magnesium</td>
<td>1.5</td>
</tr>
</tbody>
</table>

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- Acetate: acetate is used as a substrate for platelet metabolism, it reduces production of lactate by platelets and by formation of bicarbonate, and it maintains stable pH levels during storage of platelet concentrates.

**Table 1**

SSP + is recognized as the most suitable additive solution on the market that helps standardise platelet concentrates and improves storage conditions. In vitro quality and post-transfusion recovery of SSP + platelets is well maintained. Both, Buffy-Coat and Apheresis derived platelets perform at least as well as platelets stored in 100% plasma.

**Platelet Quality with SSP +**

- **SSP +** is recognized as the most suitable additive solution on the market that helps standardise platelet concentrates and improves storage conditions. In vitro quality and post-transfusion recovery of SSP + platelets is well maintained.

**Bibliography**

4. Reduced rate of adverse reactions to plasma reduced pooled platelet units possible role of minor incompatible transfusions; F.Wagner, W.Adamo, Vox Sanguinis ISBT 2006
5. Production of platelet concentrates in additive solution using the IDEO-SC Cell Separator. S. Sierke, et al., Greifswald, Germany, Revuezi DGTI Rostock Germany, 18, 16 Sept 2009
6. Reduced rate of adverse reactions to plasma reduced pooled platelet units possible role of minor incompatible transfusions; F.Wagner, W.Adamo, Vox Sanguinis ISBT 2006
7. Stammel A, Moller T, UVC irradiation for pathogen reduction of platelet concentrates and plasma. Transfusion Med Hemother 2011;38:63-64