



e-Network Forum

CALIFORNIA BLOOD BANK SOCIETY

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Proper thawing technique when preparing FFP for transfusion

An e-network member asked about proper thawing technique when preparing FFP for transfusion, and what effect, if any, there might be on FFP if the product remained in a thawing water bath (at 37C) **after** it had been fully thawed. She said that there were times at her blood bank that FFP was left in the thawing water bath beyond the product being completely thawed, and that she worried about a deleterious effect this might have on the coagulation factors (particularly Factor VIII). The inquiring member added that **the extended times beyond complete product thawing have been as long as 5 to 60 minutes**. She wanted to know at what point the clotting factors in thawed FFP might be lowered to a level where the product must be discarded. Her Center is going to embark on a study if there are none so that there is evidence-based data to support the allowable extended time beyond thawing, if there is one.

Here are the comments received in response to the above question.

1. **The Editor of the upcoming 14th edition of the AABB Technical Manual** commented that he was **not aware of any data** on extended thaw periods for coagulation factor levels of FFP. His **guess is that unless we are talking about extremely prolonged times (hours) in the water baths the effects would be minor**. For example, even at room temperatures the clotting factors are relatively stable over 5 days as evidenced by studies done on platelets. He graciously provided data about **clotting factor stability at 4C** (which appears in the Technical Manual) and a second set of data from a table of **clotting factor stability in platelets** that appears in the AABB 6th edition of Questions and Answers book (2000). This second set of data will appear in tabular form in the 14th edition of the Technical Manual. He also commented that if the e-network forum is **aware of additional information** on this subject, he would like to know it because it could be incorporated in the Technical Manual or in some other source (e.g. one of the Q and A books)".
2. A **representative of THERMOGENESIS CORP** commented that his company produces a thawing **device that minimizes the exposure of thawed FFP to 37C temperatures once the thawing is completed**. When using this device, FFP is lowered into a membrane pocket, and the thawing device is then activated with a keypad timer, typically for 10 minutes. Water, which is maintained in a reservoir and which has been heated to 37C, is then pumped into a membrane pocket which molds around the FFP allowing for a rapid transfer of heat into the FFP. This heat transfer is further accelerated by a mechanism that gently massages the thawing FFP throughout the process. After 10 minutes the heated water returns to the reservoir, the membrane pocket opens up and the FFP can be lifted out, or left in the pocket. If the FFP is left inside of the pocket, its temperature drops to room temperature. Thus, this device avoids the problem of exposing thawed FFP to excessive time in 37C water after it has been completely thawed. These devices come in 2-pocket, 4-pocket and 10-pocket configurations.
3. **Helmer Labs** manufactures FFP thawing devices that upon completing the thawing cycle both **alert the operator via a tone and employ a basket assembly that automatically rises out of the water chamber**. Thus, these devices also avoid the problem of exposing thawed FFP to excessive time in 37C water after thawing is completed.
4. **Previous e-Network discussions** germane to this issue include:
 - [Clots in thawed FFP](#)
 - [Minimizing Wastage of Unused Thawed FFP](#)
 - [Expiration Date of Plasma Frozen Within 24 Hours?](#)
 - [Some Practical Questions About Donor Retested FFP](#)
 - [How best to manage plasma products that are returned unused and how to minimize wastage of plasma products?](#)

Please submit comments to the [e-Network Forum](#).



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Addenda:

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