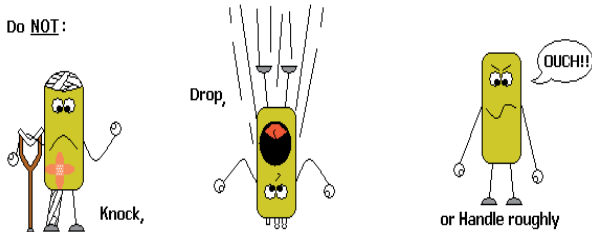


Plasma Handling

Each bag of frozen plasma should be handled with the greatest of care as the plastic container becomes brittle at storage temperatures which assure product quality. Hypermune is a high protein product which is damaged by excess heat i.e. temperatures $>40^{\circ}\text{C}$

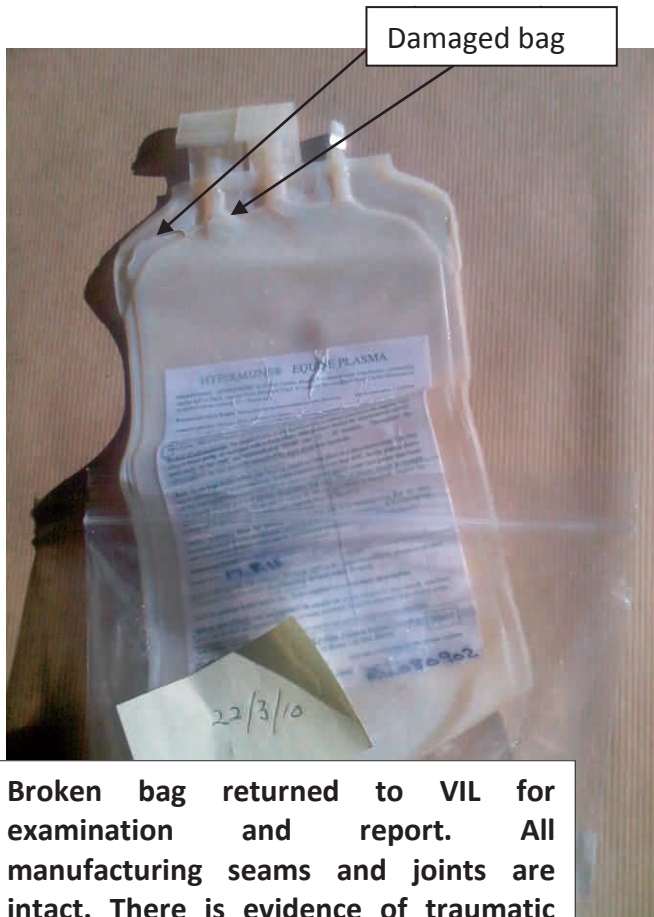
Use a dedicated freezer or a dedicated compartment or container in your freezer. Use different sections for each of the Hypermune products.

Do NOT:

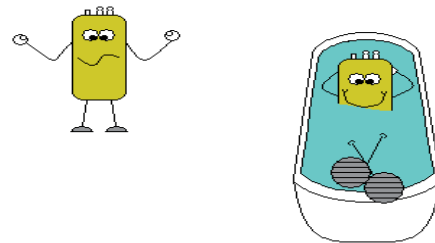


Thawing your Hypermune **MICROWAVES**

MUST NOT BE USED, never expose any Hypermune product to microwaves or temperatures $>40^{\circ}\text{C}$. Quality will be compromised if this happens. When thawing, use a water bath carefully, to ensure that no hot water flowing from the tap comes in direct contact with the Hypermune bag

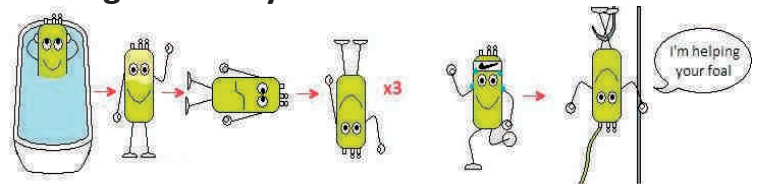


Broken bag returned to VIL for examination and report. All manufacturing seams and joints are intact. There is evidence of traumatic damage.



Warming to body temperature and preparation for Transfusion

Every 10 minutes over a period of an hour, pick up the bag and invert a few times so that the contents are mixed or 'stirred' as heat distribution by convection does not occur. **Only when the Clammy feel has gone and nothing is floating is it ready for use.**



Use a blood giving set with a large filter

For further information www.veterinaryimmunogenics.com

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A GUIDE - TO TRANSFUSION BEST PRACTICE

Before considering plasma transfusion, it is recommended that a full clinical examination with particular emphasis on cardio vascular and respiratory systems is conducted.

Consider stage of development:

Premature <320 days

Dysmature >320 days with signs of immaturity

A 50kg foal is not a miniature adult. In particular note that between birth and 1 month the sympathetic nervous system matures dramatically. Until then, the immature baroreceptor reflex (the body's homeostatic mechanism for maintaining blood pressure) means that there is an inherent degree of haemodynamic instability and neonates do not tolerate sudden or large changes in blood pressure or volume very well.

Knowledge of normal foal behaviour and physical parameters is particularly essential to identify septicaemia early. Indicators of normal health for foals are summarised in Table 1 and Table 2.

Table 1

From Birth to:	
Sternal Recumbency	1-2 minutes
Standing	Within 1-2 hours
Suck reflex	2-20 minutes
Suckling	Within 2 hours then 4-7 times per hour Gets up to suckle if woken
Meconium	Within 4 hours
First Urination	Within 9 hours

Table 2

Normal Temperature	37.2-38.6°C 99-101.5°F
Heart Rate: At birth	>60 beats per minute
Heart Rate: From 6-60 minutes	80-130 beats per minute
Heart Rate: Day 1-5	80-120 beats per minute
Respiratory Rate after 1 hour old	30-40 per minute

The Clinical Examination: A full clinical examination of any foal is essential prior to plasma transfusion. This examination should assess the body weight and degree of hydration as well as an assessment of the cardiovascular and respiratory system. If septicaemia is suspected, the clinical examination should also focus on potential portals of entry of infection and for signs of reaction to infection.

RESTRAINT and the SEDATION of FOALS: Foals up to 1 month of age can usually be restrained manually by a single person. Chemical restraint is to be avoided in equine neonates if at all possible. Consider only Benzodiazepines (Diazepam (Valium)) as these drugs are particularly useful because of their minimal side effects on the cardiovascular and respiratory systems.

Plasma Administration for use in Foals 24 hours to 6 days of age

- Weigh the foal
- Dose according to weight at 20ml/kg
- Thaw and warm plasma thoroughly (40°C)
- Use a blood giving set and 16 gauge catheter
- Start very slowly & diligently to monitor vital signs
- Administer 1 litre in not less than 15 – 20 minutes

Pharmacovigilance is the constant monitoring of product use and any suspect adverse reactions in the field. 18 years experience has demonstrated that reactions to Hypermune transfusions are **extremely** rare. Those that have occurred are the result of problems arising from sedation, product preparation and administration but not from product quality.