tecninox group

BLOOD PLASMA

PRECIOUSNESS OF PLASMA-DERIVED PRODUCTS

MODULAR APPROACH FOR ASEPTIC PROCESS

Modern plasma fractionation plants are complex engineering masterpiece:

built to efficiently manage the fractionation of millions of liters of plasma applied in the formulation of a wide variety of therapeutic products.
These impressive process plants are built with a Modular Approach for easier construction and installation.

A plant in which each element is designed to handle organic material and therefore the process is managed in aseptic manner ensuring compliance with the stringent requirements for the finished product; the technological washing and sterilization components play a fundamental role.

AUTOMATION SYSTEM

can control each delicate phase of the process

Such process plants can be enriched and made even more functional with an automatic or semi-automatic control system to supervise each process and maintenance phases, monitoring critical and non-critical parameters, guiding the operator during the production.

HUMAN PLASMA:

a rare and strategic resource that can't be synthesized in laboratory

Plasma-derived therapies (as albumin, clotting factors, gamma globulins and other proteins) are pharmaceutical products applied to treat multiple disease, like immunodeficiencies, hepatitis, septic shock, inflammations etc. Plasma is obtained by human donors through plasmapheresis, collected in bags, frozen and delivered to the process plant.

BLOOD PLASMA FRACTIONATION:

one matter, multiple applications

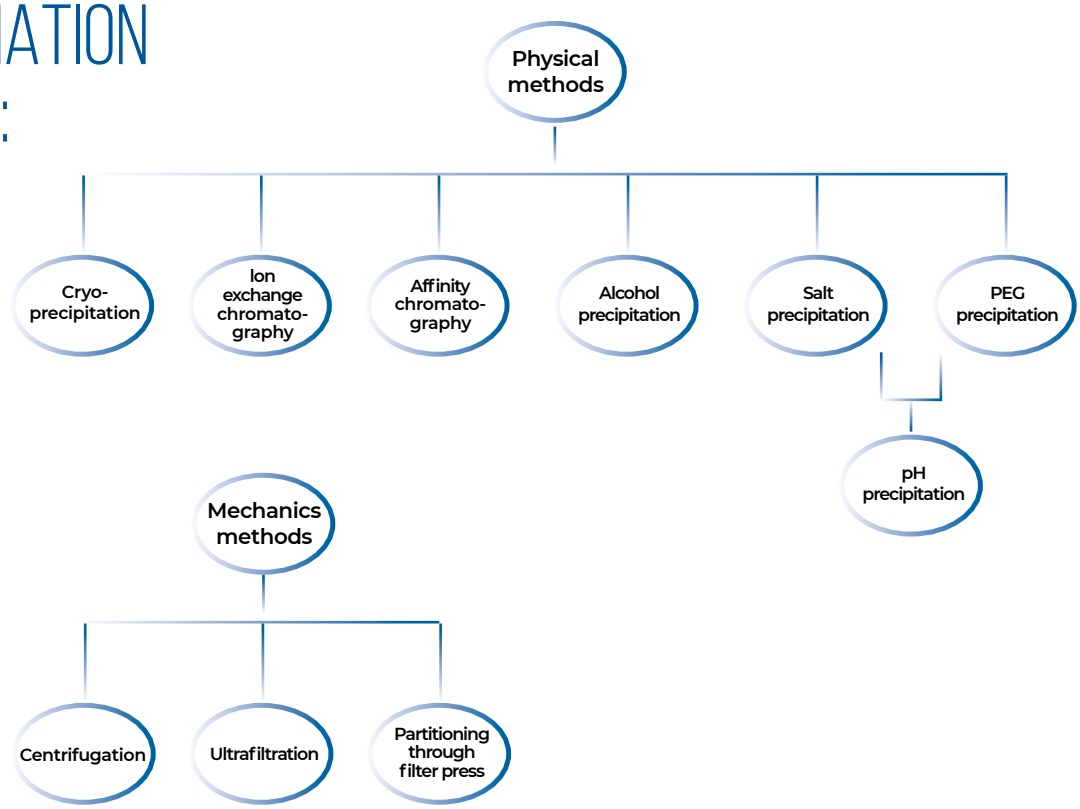
Following the delivery, the frozen plasma passes through a thawing phase. Later on, fractionation begins: plasma proteins are separated from plasma thanks to chemical/physic conditions as pH, temperature, ion strength, ethanol concentration.

Precipitated proteins are separated from plasma by centrifugation: precipitate is processed to obtain the clotting factors (Factor VIII, XIII, von Willebrand factor and fibrinogen).

Supernatant instead is used to extract Factor IX and VII, immunoglobulins and albumin.

Lastly, to deliver safe products, some of the most important phases: virus inactivation obtained by pasteurization (heating in aqueous solution, 60° C for 10 h), heating of freeze-dried products, detergent/solvent treatment (Triton X, Tween 80), nanofiltration, low pH, chromatography, sterile filtration.

FRACTIONATION METHODS:



PLASMA-DERIVED PRODUCTS:

- F IX
- F VIII
- F XIII
- F XI
- F VII
- FIBRIN GLUE
- FIBRINOGEN
- VON WILLEBRAND'S FACTOR
- FRACTION V
- ALBUMIN
- FRACTION IV
- IMMUNOGLOBULINS
- FRACTION II+III
- FRACTION I
- PROTEIN C
- AT III

IT IS THE MIND THAT SHAPES THE STEEL

Solutions for the pharmaceutical and biotechnological industries

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Find out more on Process plants