

The -20 degree challenge

An example of high-value cargo: how Hapag-Lloyd manages to transport a highly sensitive good like blood plasma across the Atlantic

High-value cargo is defined as cargo that is valued over a specific dollar amount and therefore needs special attention. This could be high-priced electronics or pharmaceuticals that need to be shipped

in temperature-controlled conditions. Blood plasma is also temperature-sensitive - it needs to be kept at a temperature of -20 °C or cooler at all times. From the time the booking is placed to deliv-

ery to the customer, Hapag-Lloyd staff both ashore and at sea work throughout the transport to ensure the cold chain temperature is maintained and the product is delivered in good order.



Portable generator set

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REEFER INLAND TRANSPORT

The reefer container is tested to -35 °C at the port of loading depot before release. A portable generator set is attached to the box to provide electricity during inland transport so it is still at -35 °C when it arrives at port warehouse.



Erlanger



Dallas

Savannah

Houston

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AT THE WAREHOUSE

The cargo is transferred from the freezer warehouse via a cooled handling space. 18 pallets are stuffed in less than 30 minutes. The reefers are pre-cooled and checked before and after stuffing to ensure the temperature remains constant.



ON THE VESSEL

On the ship the high-value cargo is placed on deck behind the accommodation block and not in the two outside rows (for access and safety reason) so that the temperature can easily be checked at least twice a day in most weather conditions. All our ships carry extra spare parts and the engineers on board are all well trained to carry out any repairs necessary.

Norfolk

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THE CHALLENGE OF TRANSPORTING BLOOD PLASMA
Plasma needs to be kept frozen at a temperature of -20 °C or cooler at all times - otherwise the protein content depletes and the plasma loses some of its value. The challenge is to maintain the cold chain throughout the transport, including during quick interchanges that involve temporary loss of power to the reefer machinery.

ATLANTIC LOOP 3 (AL3)
Plasma is mostly shipped on the Atlantic Loop 3 (AL3) - a US Flag service. The vessels have plugs for 400 reefers.

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REMOTE MONITORING

Remote monitoring helps to detect temperature deviations quickly and so to prevent charge loss. Even if an error occurs shortly after the inspection, the rise in temperature remains low as the remote monitoring alarm triggers an email that calls for immediate inspection/repair of the container.

WHAT IS PLASMA?

Blood plasma is the yellowish-coloured liquid component of blood that normally holds the blood cells in whole blood in suspension. It is separated from the blood by spinning a tube of fresh blood in a centrifuge until the blood cells fall to the bottom of the tube. In addition to water, blood plasma contains proteins, hormones, carbon dioxide and oxygen. The proteins in particular are used to produce vital medicines that help with immune problems, blood disorders, lung disease and infectious diseases such as tetanus.

Portable generator set

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REEFER INLAND TRANSPORT

Hapag-Lloyd ships plasma to Bremerhaven. From there it is transported inland to Germany, Austria or Sweden for processing.

SHIPPING LOG

Bremerhaven

Antwerp

Substances



55 % PLASMA

The non-cellular portion of blood, which consists of about 90 % water and about 10 % dissolved substances.

45 % BLOOD CELLS

The cellular blood components (haematocrit)

BLOOD VOLUME

