**K-Sim® Cargo**

**Chemical carrier**

Chemical tankers are complex vessels with cargoes that require careful management. The operator must maintain a historical record of the contents of each tank and consider the cargoes in adjacent tanks before loading. Due to the risk of a chemical reaction, some cargoes cannot be stored next to each other and tanks must be cleaned according to very specific procedures when their cargo has been discharged.

**Model description**
The chemical carrier model is based on a real ship modified to cover most chemical carriers, including tank types 1, 2, and 3. It has 37 tanks, all fitted with fixed submerged pumps and separate lines and manifolds. It also includes an inert gas generator, a bank of N2 bottles, and 20 available ready-made cargo types. The user may enter 10 cargoes of their choice. Tank atmosphere data is calculated continuously. There are no chemical reactions between the cargoes, but cargoes may solidify.

**STCW requirements**
The chemical carrier model meets the requirements of STCW section A-II/1, A-II/2, A-II/3, A-III/1, A-III/2, and A-V/1. These sections cover

- planning and ensuring safe loading
- care during the voyage and unloading of cargoes
- trim, stability, and stress to maintain seaworthiness of the ship

**DNV GL certification**
This model is certified and approved according to DNV GL's Standard for Certification of Maritime Simulator Systems ST-033 March 2017.
MODEL FEATURES AND DETAILS

Vessel's main particulars
- Dead-weight: 36733 MT
- Length overall: 182.30 m
- Length bpp: 177.10 m
- Breadth moulded: 32.00 m
- Depth moulded: 14.00 m
- Summer draught: 10.73 m

Vessel details
- Cargo tanks: 37: 29 SS and 8 mild steel coated w/ zinc
- Ballast tanks: 10 in double hull
- Cargo pumps: 100-600 m³/h at 90 mLC Hydraulic and electric
- Portable pumps: 2
- Portable fans: 6
- Heating system: 3 tanks - thermal oil heating
  34 tanks - hot water heating

Note: Specifications subject to change without notice

TRAINING LEVELS AND OBJECTIVES

Training levels
The simulator solution can be provided both as a desktop system for classroom training and as a full mission system. A BigView 3D interactive mimic with 3D pop-up display is also available for enhanced familiarization of the cargo operations.

The simulator is suited for the following training:
- Junior officers in basic cargo operations
- Senior officers in full-scale cargo operations (loading/discharging/ tank cleaning /venting)
- Senior officers and captains in advanced cargo-handling operations

Training objectives
The training objective of this model is to understand the total cargo-handling operation. Specific training objectives include the following:
- Familiarization with all parts of the cargo system
- Planning a cargo-loading or discharge operation using the Data Load load computer
- Lining up for loading and ballast handling simultaneously (check atmosphere)
- Stripping final remains of a tank and stack according to normal procedures
- Controlling the flow into each tank and the trim/list of the ship
- Topping up and finalizing loading
- Preparing and lining up for discharge including inert gas plant or N2 supply
- Starting up discharge from one or more tanks with fixed submerged pumps
- Tank cleaning with fixed guns (setting correct pressure and washing angles)
- Planning what tanks/cargo to load/discharge in which port
- Cleaning tanks with detergent
- Venting tanks for inspection/docking using an explosion diagram for each tank (included in the model)