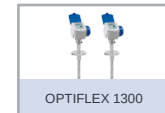
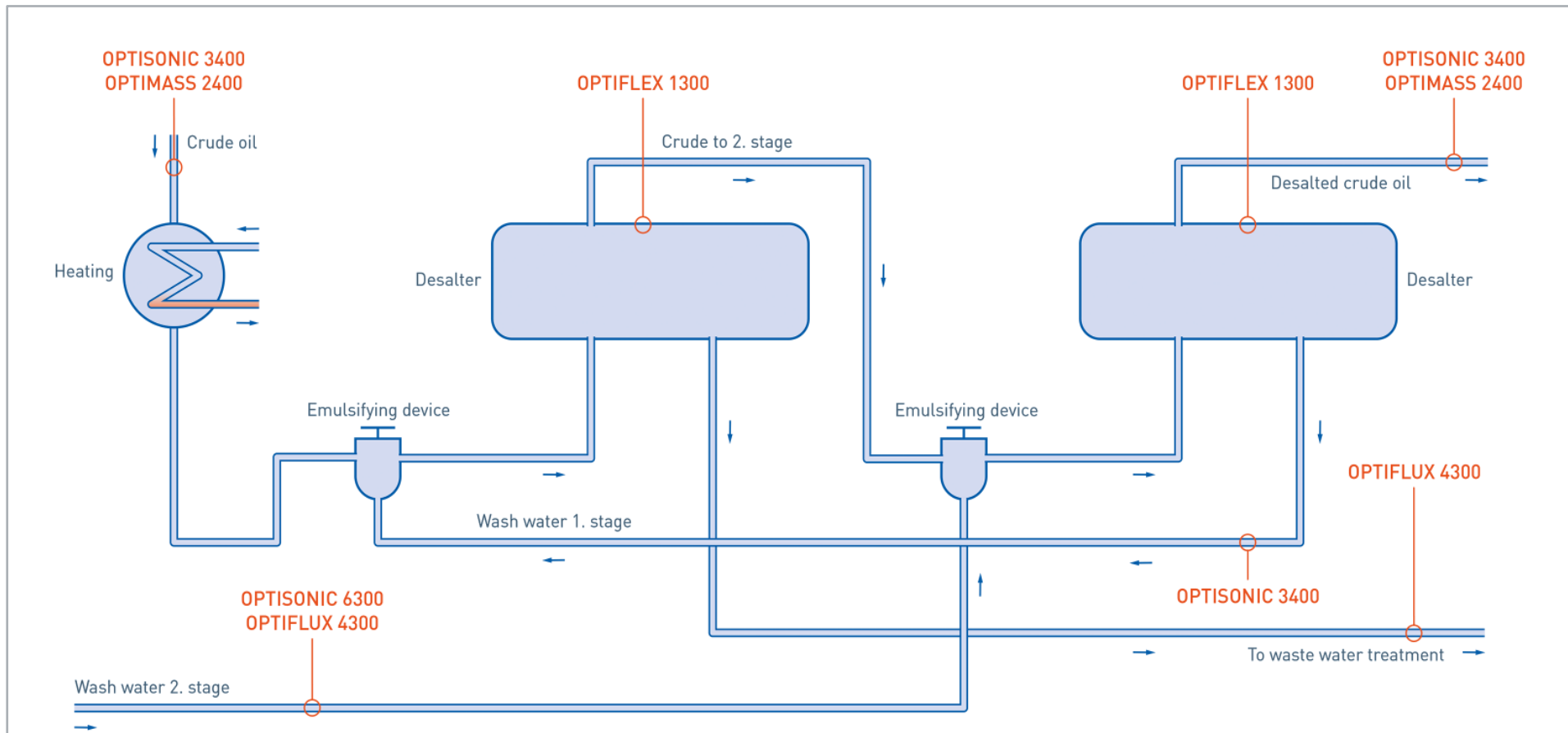


The diagram illustrates the complex refining process of crude oil. It begins with **Crude oil** entering a **Crude desalting** unit. The output then goes to **Atmospheric distillation**, which separates the oil into various streams based on boiling points. These streams are then processed through different units: **Gas** and **Other gases** are sent to **Gas processing** and **Amine treating** (which produces **Refinery fuel**). **Light naphtha** is treated by a **Hydrotreater** and then an **Isomerization plant** to produce **Isomerate**. **Heavy naphtha** is treated by a **Hydrotreater** and then a **Catalytic reformer** to produce **Reformate**. **Jet fuel kerosene** is treated by a **Merox treater** to produce **Jet fuel and/or kerosene**. **Diesel oil** is treated by a **Hydrotreater**. **Atmospheric gas oil** is treated by a **Hydrotreater** and then a **Hydrocracker** to produce **Hydrocracked gasoline** and **Diesel oil**. **Atmospheric bottoms** are sent to a **Vacuum distillation** unit, which produces **Light vacuum gas oil**, **Heavy vacuum gas oil**, and **Vacuum residuum**. The **Light vacuum gas oil** is treated by an **FCC feed hydrotreater** and then a **Fluid catalytic cracker (FCC)**. The **Heavy vacuum gas oil** is sent to a **Hydrocracker**. The **Vacuum residuum** is sent to a **Delayed coker**. The **FCC** produces **Gas**, **H₂**, and **FCC gas oil**. The **Hydrocracker** produces **Gas**, **H₂**, and **Hydrocracked gasoline**. The **Delayed coker** produces **Gas**, **H₂**, **Coker naphtha**, **Coker gas oil**, and **Petroleum coke**. The **FCC gas oil** is treated by a **Hydrotreater** and then an **Alkylation** unit. The **Coker naphtha** is treated by a **Hydrotreater** and then an **Alkylation** unit. The **Coker gas oil** is treated by a **Hydrotreater** and then an **Alkylation** unit. The **Alkylation** unit produces **Alkylate**. The **Hydrocracked gasoline**, **Isomerate**, **Reformate**, and **Alkylate** are all sent to a **Gasoline blending pool**. The **Diesel oil**, **Jet fuel and/or kerosene**, and **Fuel oil** are also sent to the blending pool. The **Sulfur** from the **Claus sulfur plant** is sent to the blending pool. The **Asphalt** from the **Asphalt blowing** unit is sent to the blending pool. The **Gasoline blending pool** produces **Gasoline**.

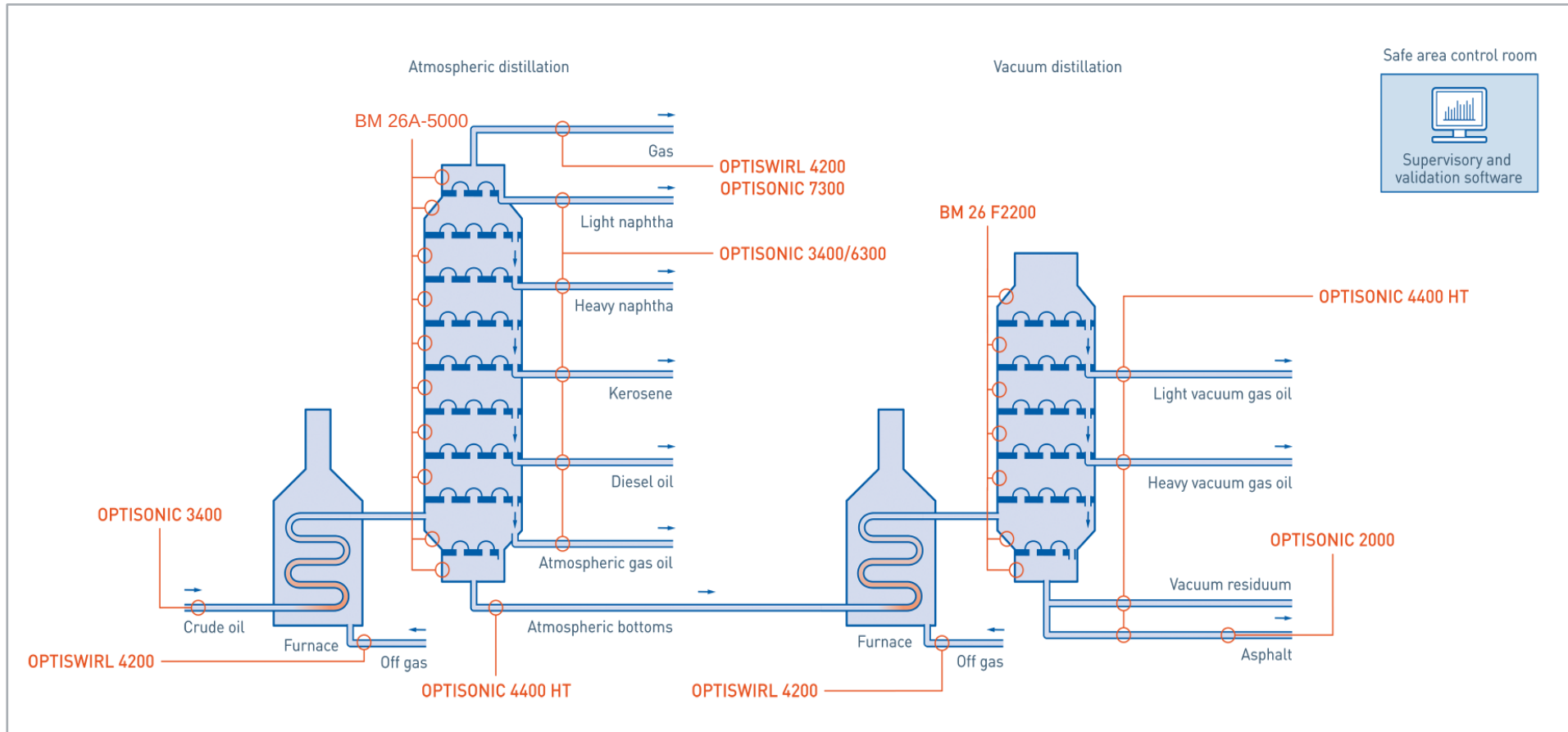
References

Refining

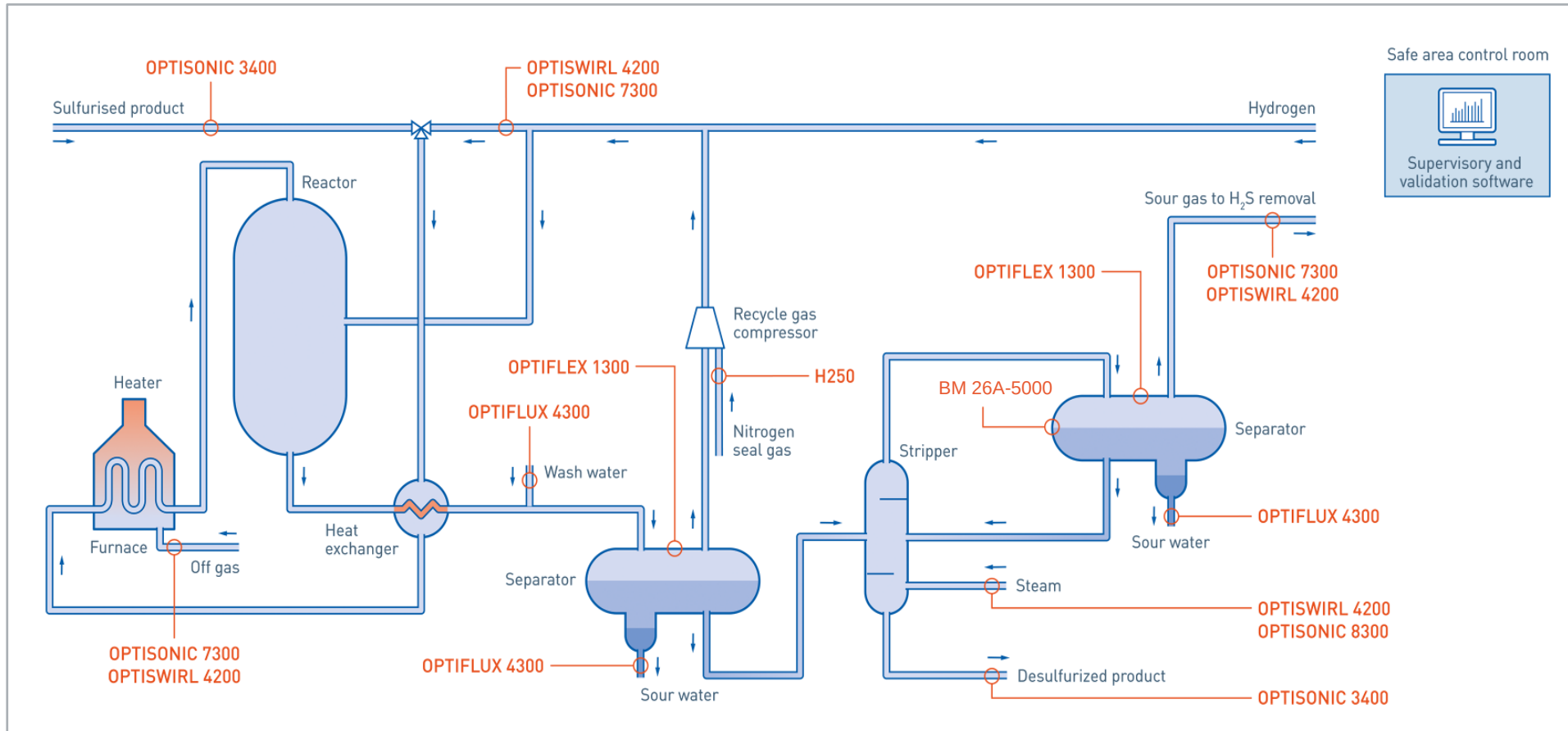
Crude desalting



Refining Distillation

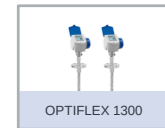
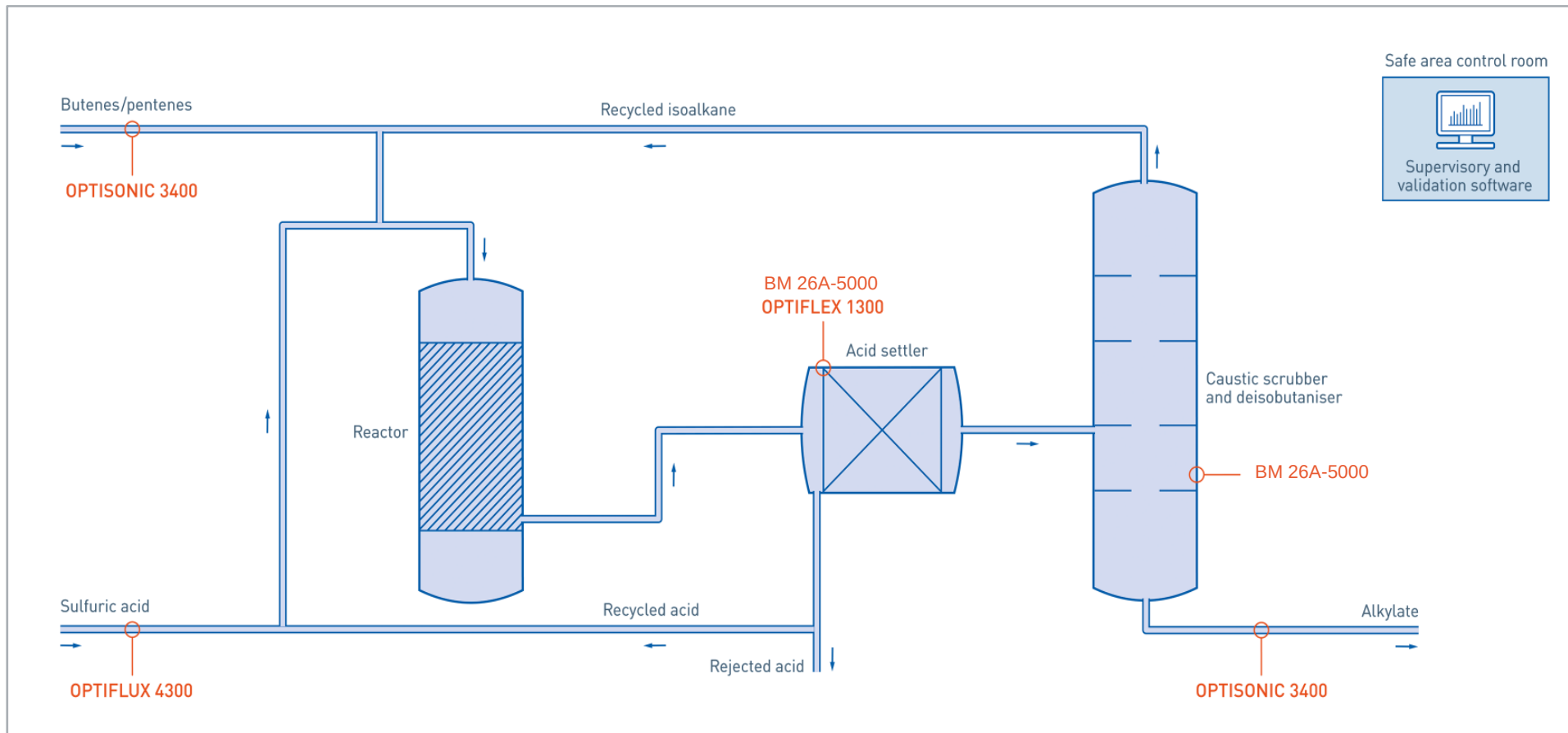


Refining Hydrotreating



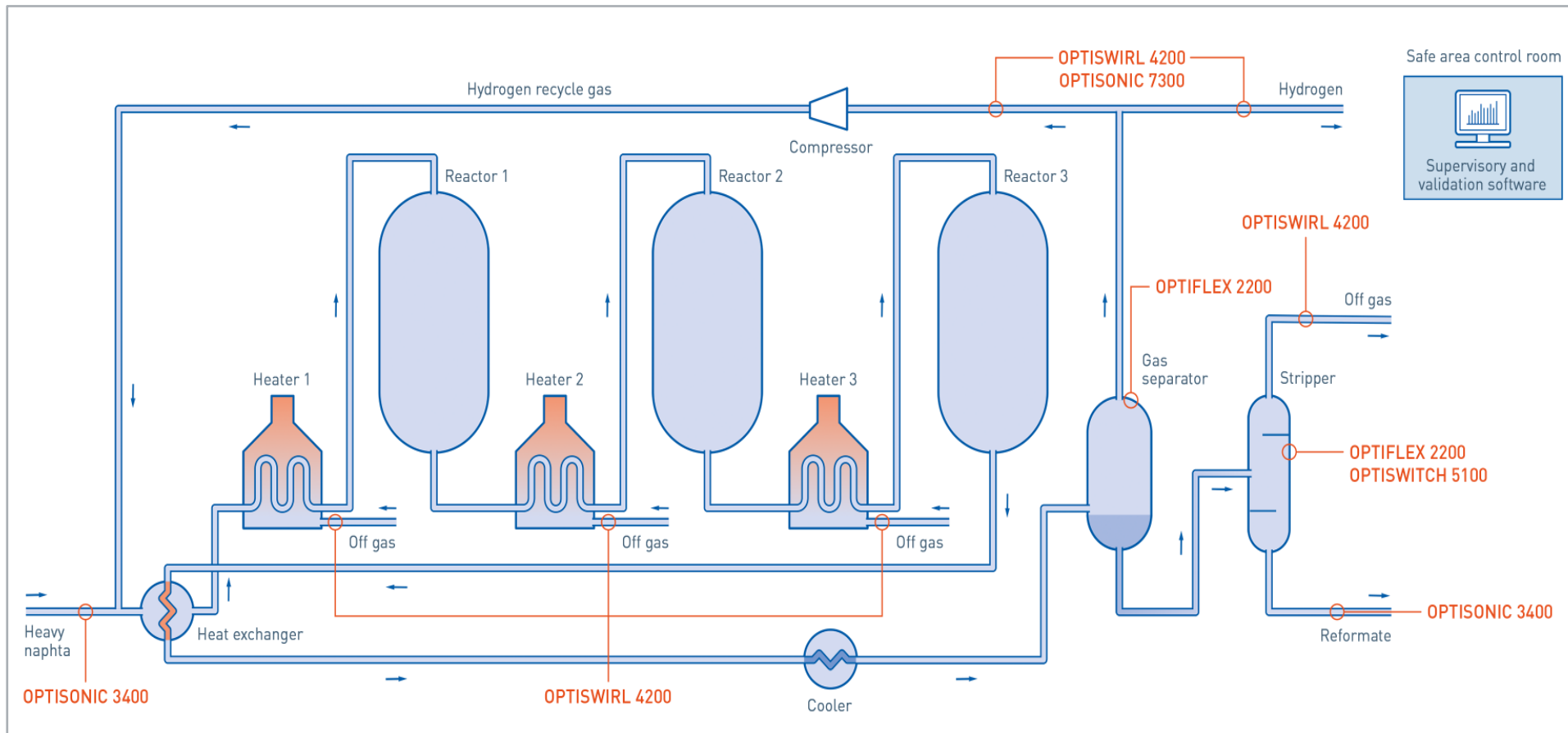
Refining

Sulfuric acid alkylation process

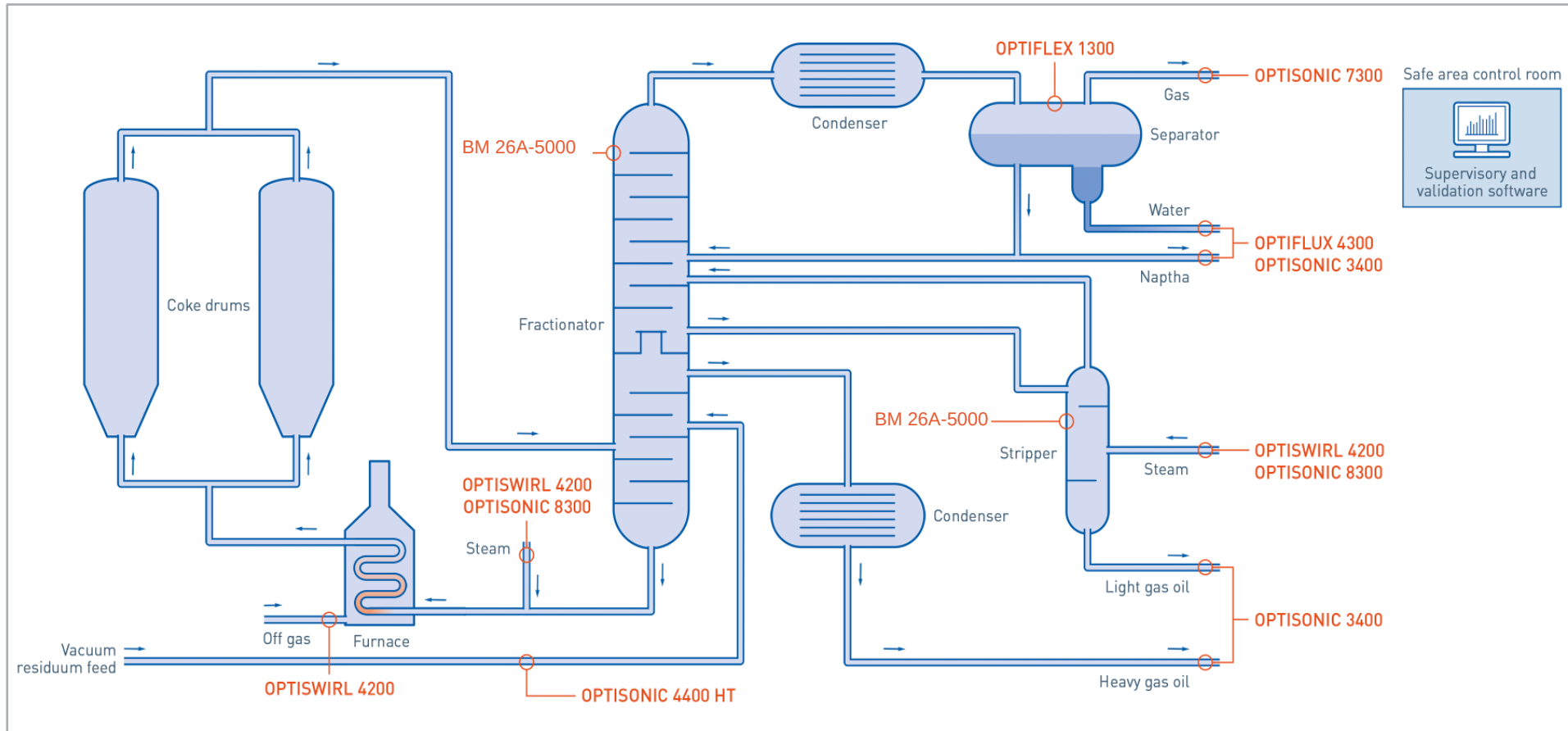


Refining

Catalytic reforming

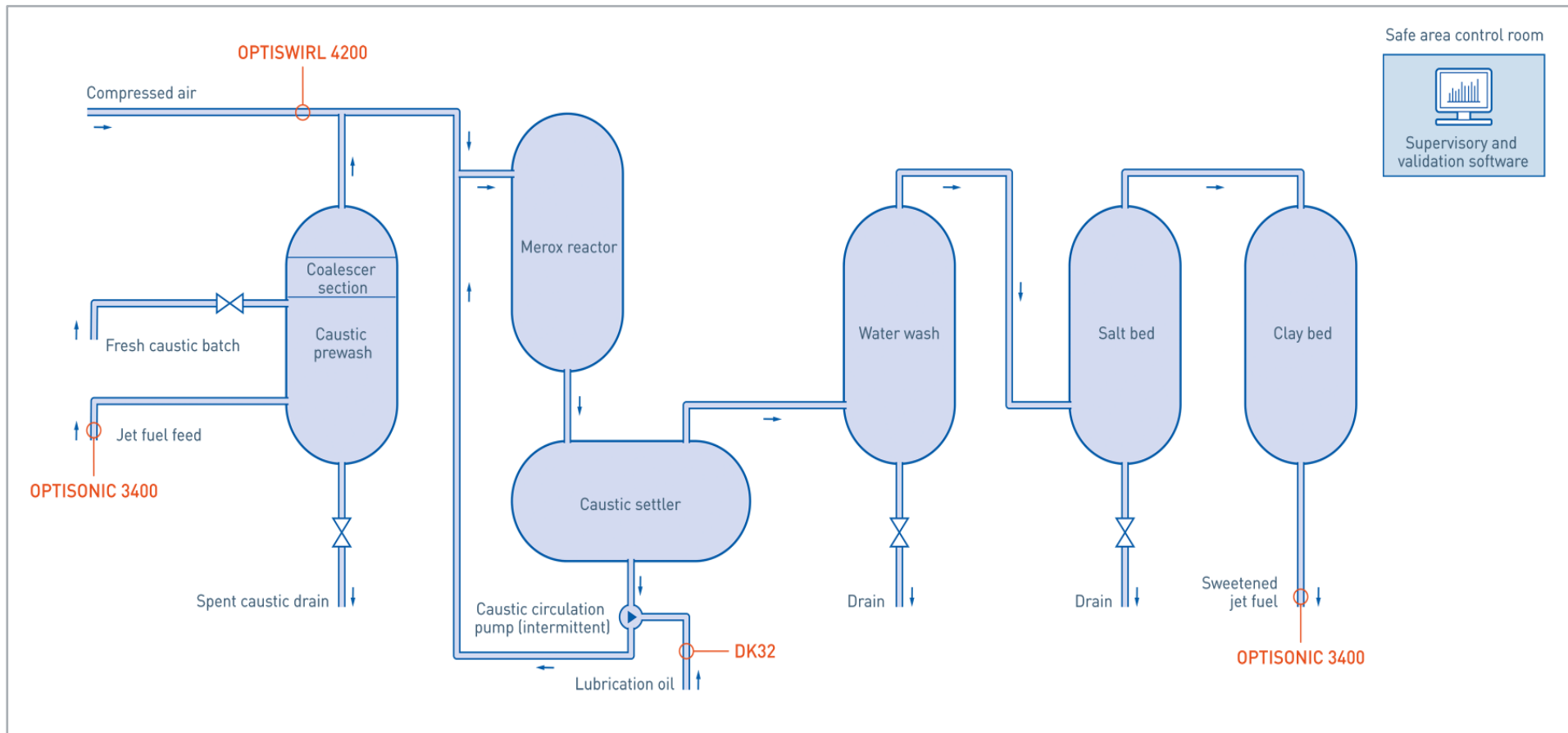


Refining Delayed coking

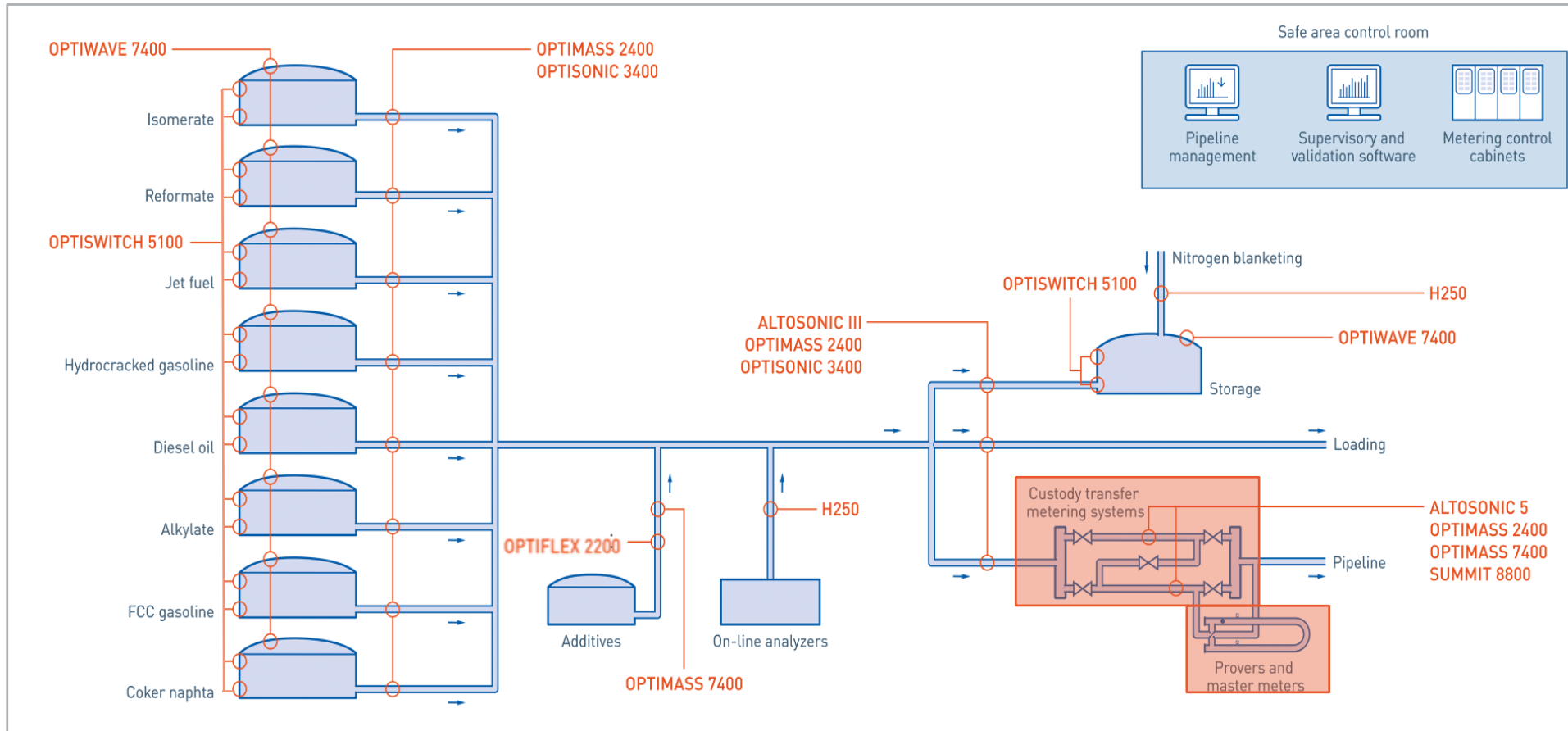


Refining

Merox treatment

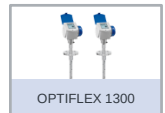
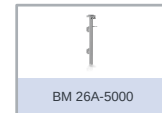


Refining Gasoline blending



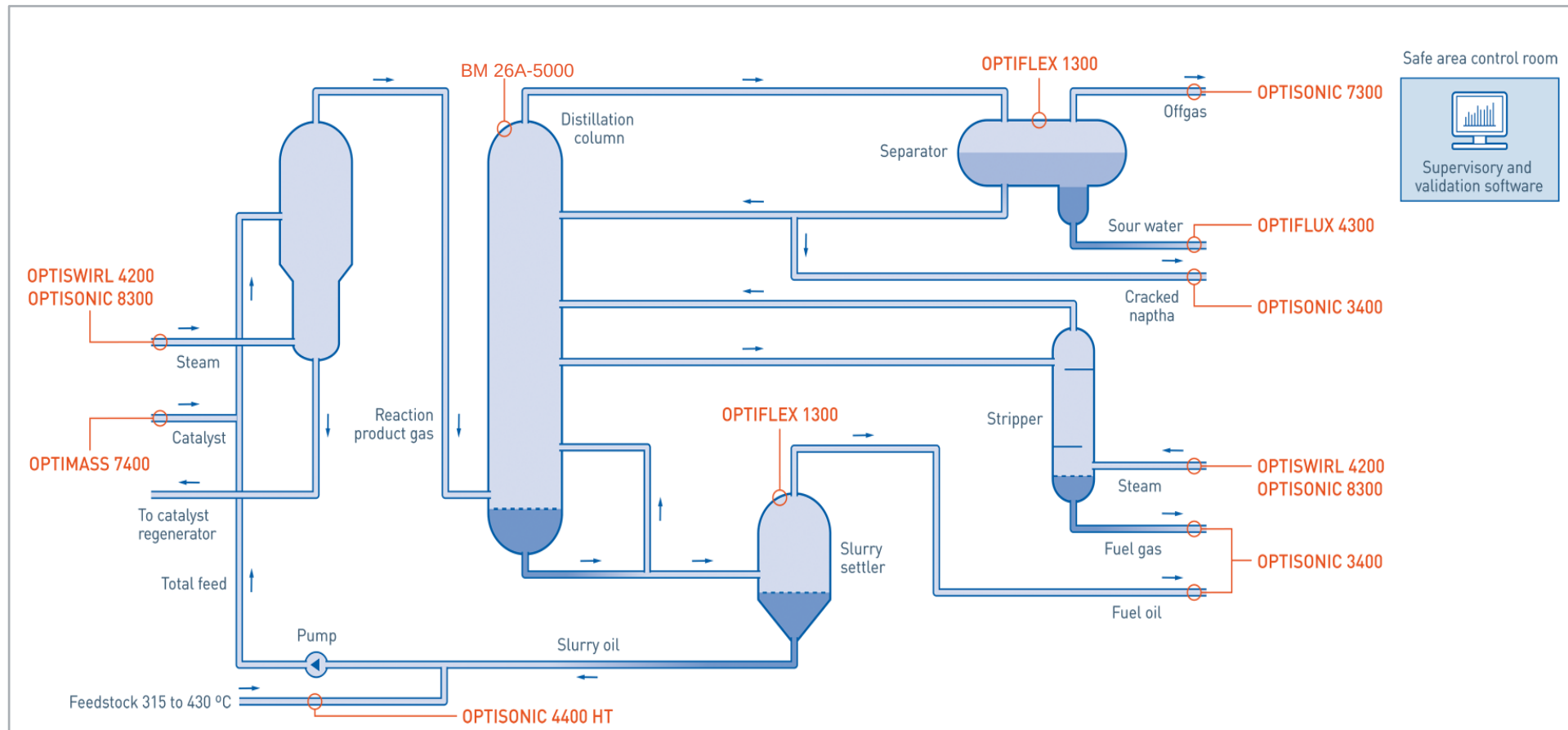
The diagram illustrates a complex industrial process flow for hydrogenation, likely in a refinery. The process involves two stages of reaction, gas separation, and product fractionation. Key components and instrumentation points are labeled as follows:

- Hydrogenation Stage 1:** Includes a "First stage reactor" and a "Recycle hydrogen compressor". Instrumentation includes OPTISONIC 7300, OPTISWIRL 4200, and BM 26A-5000.
- Amine Scrubbing:** A "Gas" stream passes through an "Amine scrubber" (labeled with BM 26A-5000) to separate "Rich amine" and "Lean amine".
- Hydrogenation Stage 2:** Includes a "Second stage reactor" and a "Recycle hydrogen compressor". Instrumentation includes OPTISONIC 7300, OPTISWIRL 4200, and BM 26A-5000.
- Gas Separation:** Two "High pressure separator" units are used to separate "Gas" from "Liquid". Instrumentation includes OPTIFLEX 1300 and OPTISONIC 4400 HT.
- Product Fractionation:** A "Fractionator" separates the liquid into "Light naptha", "Heavy naptha", "Jet fuel", and "Diesel fuel". Instrumentation includes OPTIFLEX 1300, OPTISONIC 3400, OPTISONIC 4400 HT, and OPTIFLEX 2200.
- Control Room:** A "Safe area control room" is shown with "Supervisory and validation software" (OPTIFLEX 4300).



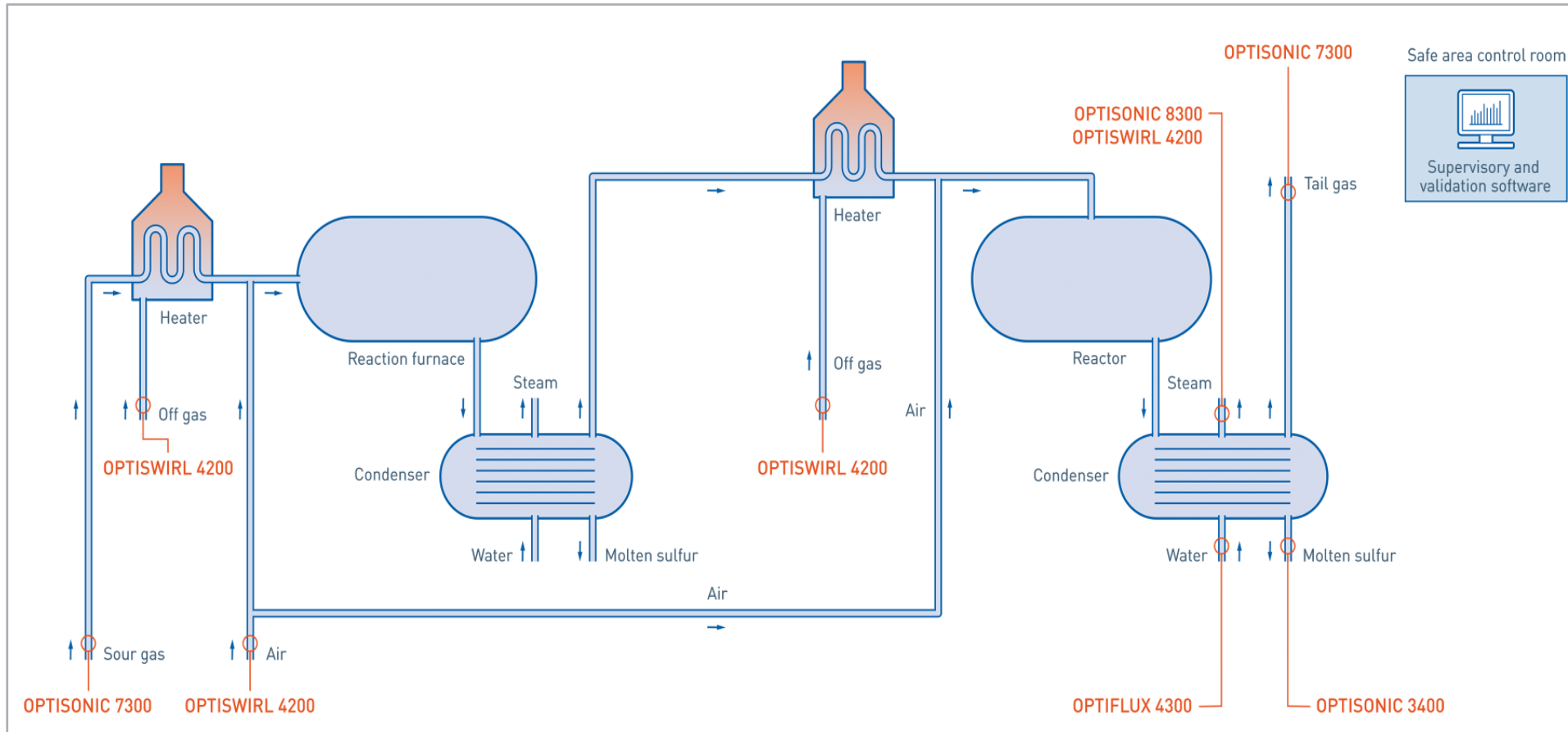
Refining

Fluid catalytic cracking



Refining

Sulfur recovery (claus process)



OPTIFLUX 4300



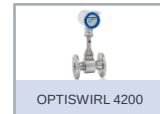
OPTISONIC 3400



OPTISONIC 7300



OPTISONIC 8300



OPTISWIRL 4200

Refining

Amine treatment

