Mercury Waste Treatment Centre

Joachim Fischer - econ industries GmbH

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Mercury waste treatment technologies and applicability

- VacuDry® - Vacuum Distillation Unit
- High Temperature Treatment Unit (HTTU)
- VaCure - Mercury Stabilisation Unit

Mercury wastes generated during Chlor-Alkali production

- Mercury containing sludges (from waste water treatment)

  Filter cake containing elemental mercury and/or mercury sulphide

  → Treatment by VacuDry® / HTTU

- Sludges from maintenance and cleaning activities

  Contain sand, activated carbon, abrasion of paint and masonry and up to 20 % elemental mercury

  → Treatment by VacuDry®

- Graphite from decomposers columns: graphite brick with 1-10 % elemental mercury
  → Treatment by VacuDry®

Example site

Example site

Mercury wastes generated during Chlor-Alkali production

Small amount of high mercury level waste →Treatment by small units or central treatment centers

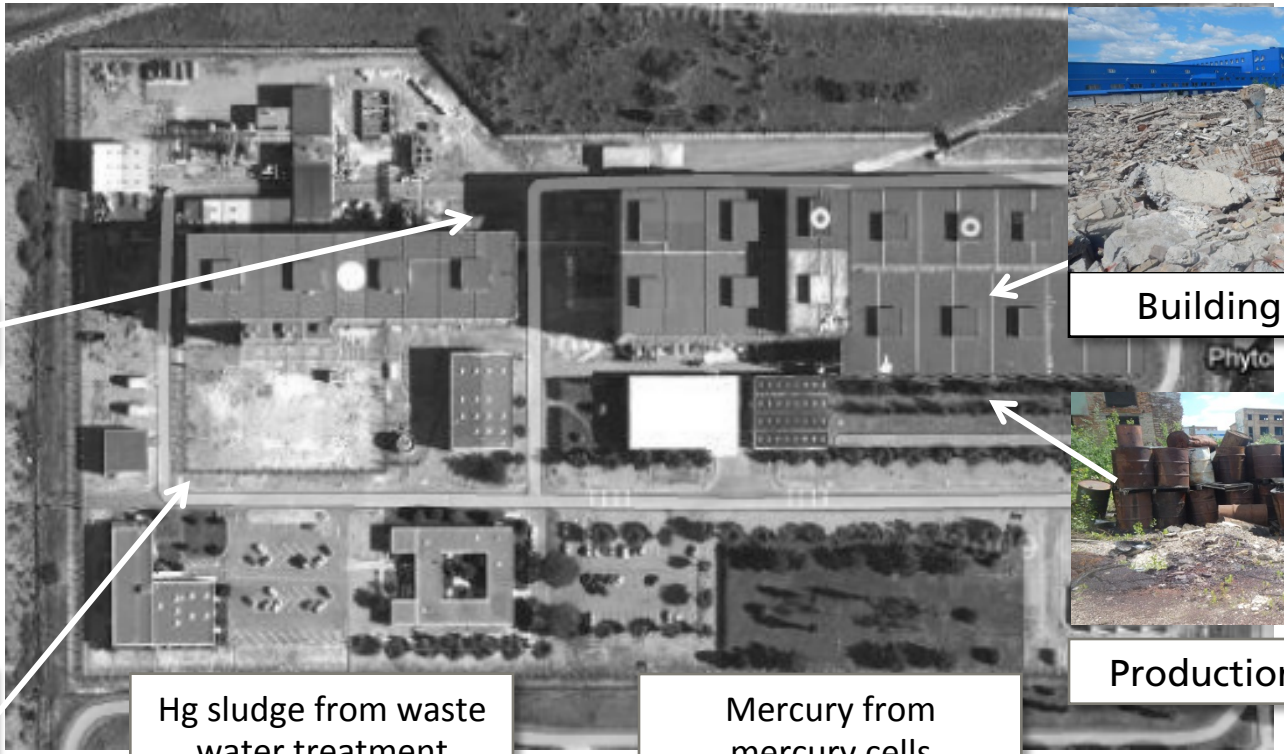
Mercury wastes generated during Chlor-Alkali production

or in a large central treatment center processing several waste streams some also containing mercury (e.g. from oil and gas industry)

Typical mercury waste streams of chlor-alkali plants after phase out

Contaminated soil

Storage site for contaminated soil



Hg sludge from waste water treatment

Mercury from mercury cells

Building rubble

Production waste

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Typical mercury waste streams of chlor-alkali plants after phase out

- **Building rubble**

  Treatment: Crushing → Screening < 30 mm →VacuDry®
- **Contaminated soil**

  Treatment: Screening < 30 mm → to VacuDry®
- **Excess mercury from mercury cells (after phase out)**

  Treatment: VaCure Stabilization → Safe disposal as HgS
- **Steel scrap**

  Treatment: cleaning by high pressure water jet:

  → Mercury Containing Sludge →to VacuDry®

  → Cleaned metal →to melting process

Typical mercury waste streams of chlor-alkali plants after phase out

Large amount (70 000 tons) of mercury contaminated soil and rubble
→Treatment by large units on-site

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Mercury waste treatment technologies and applicability

- **VacuDry® - Vacuum Distillation Unit**
- High Temperature Treatment Unit (HTTU)
- VaCure - Mercury Stabilisation Unit

VacuDry® - Vacuum Distillation Unit

Treatment of the following waste streams from Chlor-alkali industry

- Contaminated soil
- Building rubble
- Filter cake containing elemental mercury
- Sludges from maintenance and cleansing activities
- Graphite from decomposers from decomposer columns
- Production Waste

VacuDry® - Vacuum Distillation Unit

The VacuDry® Technology is widely used for the safe treatment of a variety of different industrial hazardous wastes


Drill cuttings


refinery wastes, tank bottoms


Grinding swarf and mill scale sludge


Mercury containing wastes and soils


Oil lagoon sludge and sediments


other hazardous wastes

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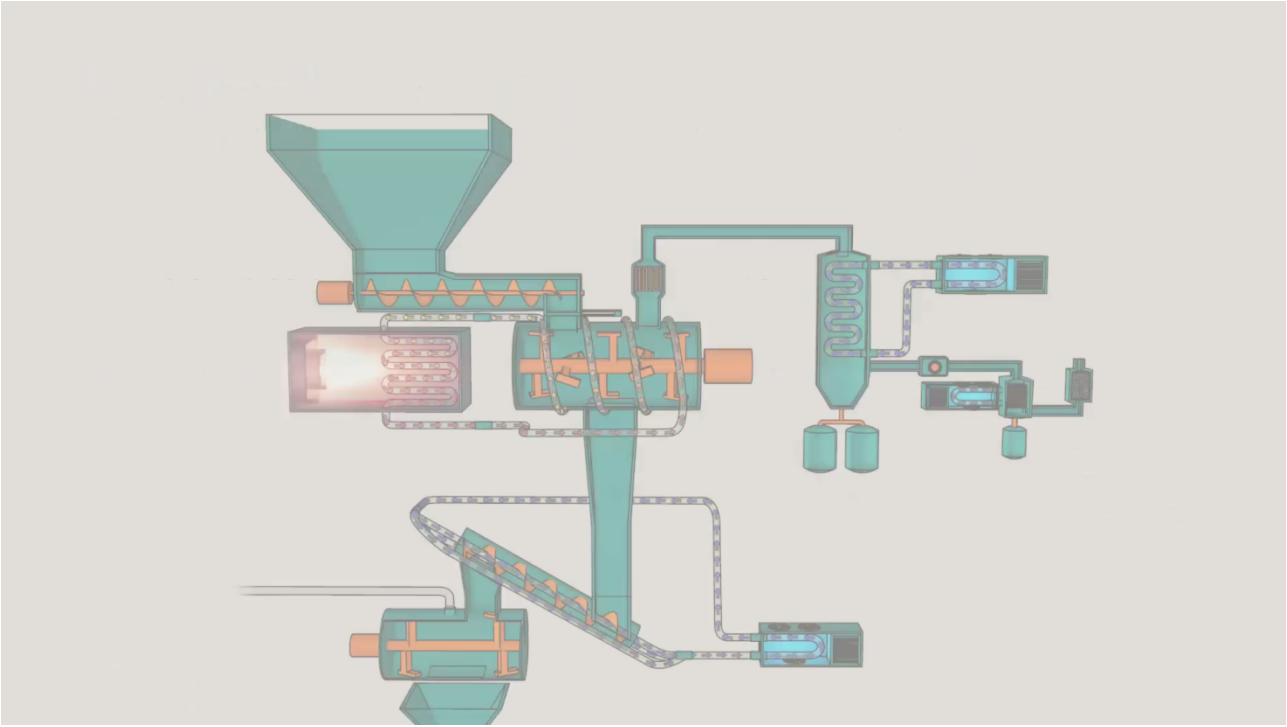
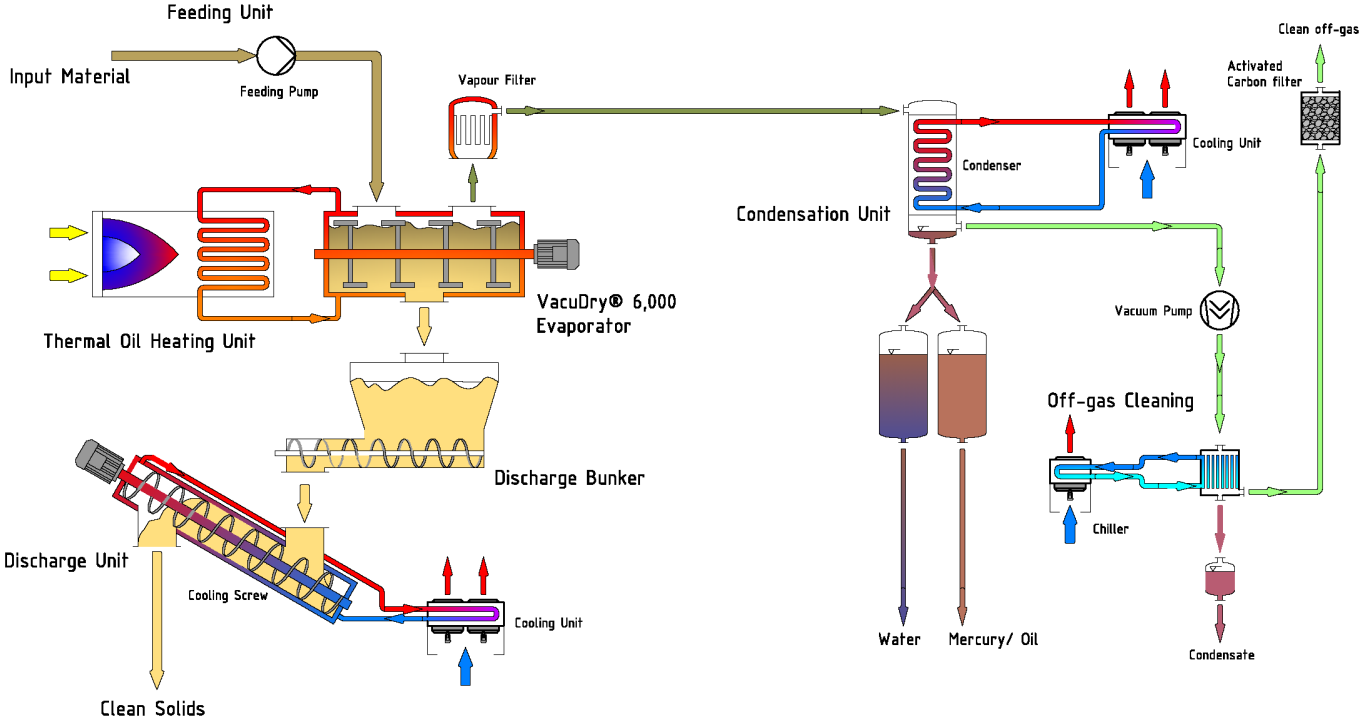
VacuDry® - Vacuum Distillation Unit



VacuDry® - Vacuum Distillation Unit



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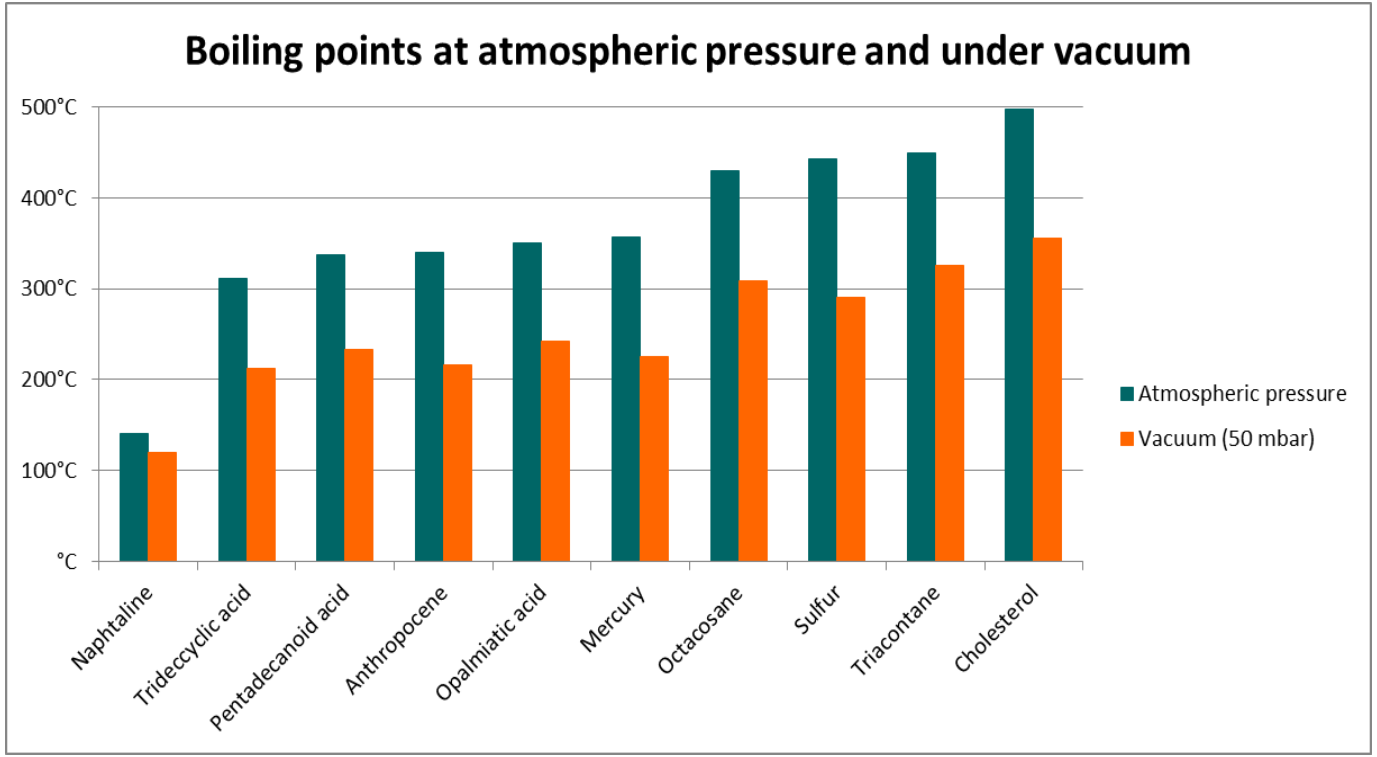
VacuDry® - Vacuum Distillation Unit

Substances suitable for vacuum distillation by VacuDry®:

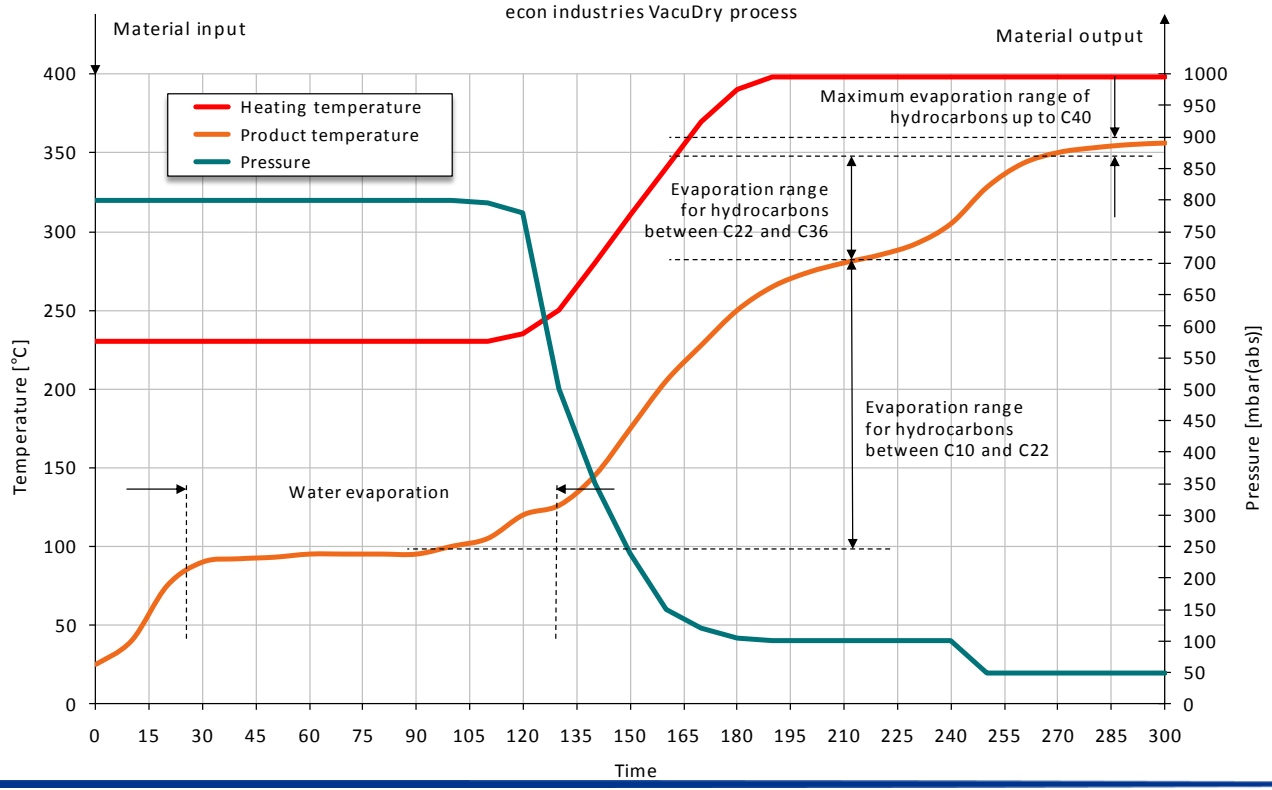
- Mercury
- Hydrocarbons (drilling fluids,crude oil, refinery products)
- PAH – polycyclic aromatic hydrocarbons
- POP – persistent organic pollutants (PCB - polycyclic biphenyls; various pesticides, herbicides and fungicides)
- CHC – chlorinated hydrocarbons
- Organic lead compounds

separated contaminants must have a boiling point < 450°C

VacuDry® - Vacuum Distillation Unit



VacuDry® - Vacuum Distillation Unit



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VacuDry® - Vacuum Distillation Unit

Min. 4 x higher energy efficiency compared to other desorber types (e.g. rotary kilns)

Lowest process emissions below 1,000 m^3/h due to vacuum operation

Worldwide EPA acceptance guaranteed, even in neightbourhood to residential areas

> 99 % resource recovery of hydrocarbons, mercury, etc.

Only desorber type for hydrocarbons up to C 40 and mercury separation with ATEX (explosion protection) certificate, approved by German TÜV

Batch wise operation with full process control

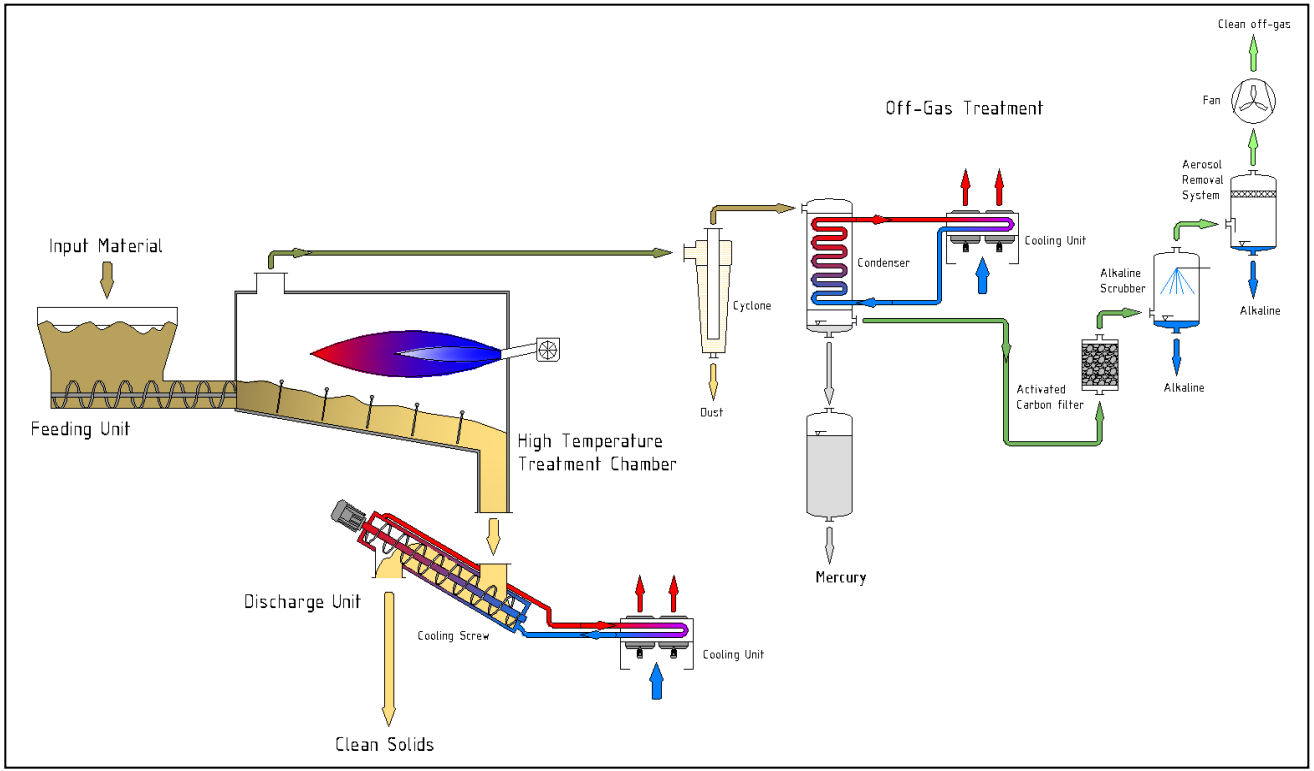
VacuDry® - Vacuum Distillation Unit

High Temperature Treatment Unit (HTTU)

Treatment of the following waste streams

- Waste water treatment sludge containing mercury sulphide
- Waste containing mercury sulphide (e.g. catalyst)

High Temperature Treatment Unit (HTTU)



High Temperature Treatment Unit (HTTU)

VaCure Mercury Stabilisation Unit

Treatment of the following waste streams

- Stabilization of excess mercury from mercury cells after closure
- Stabilization of mercury recovered from waste and contaminated soil

VaCure Mercury Stabilisation Unit

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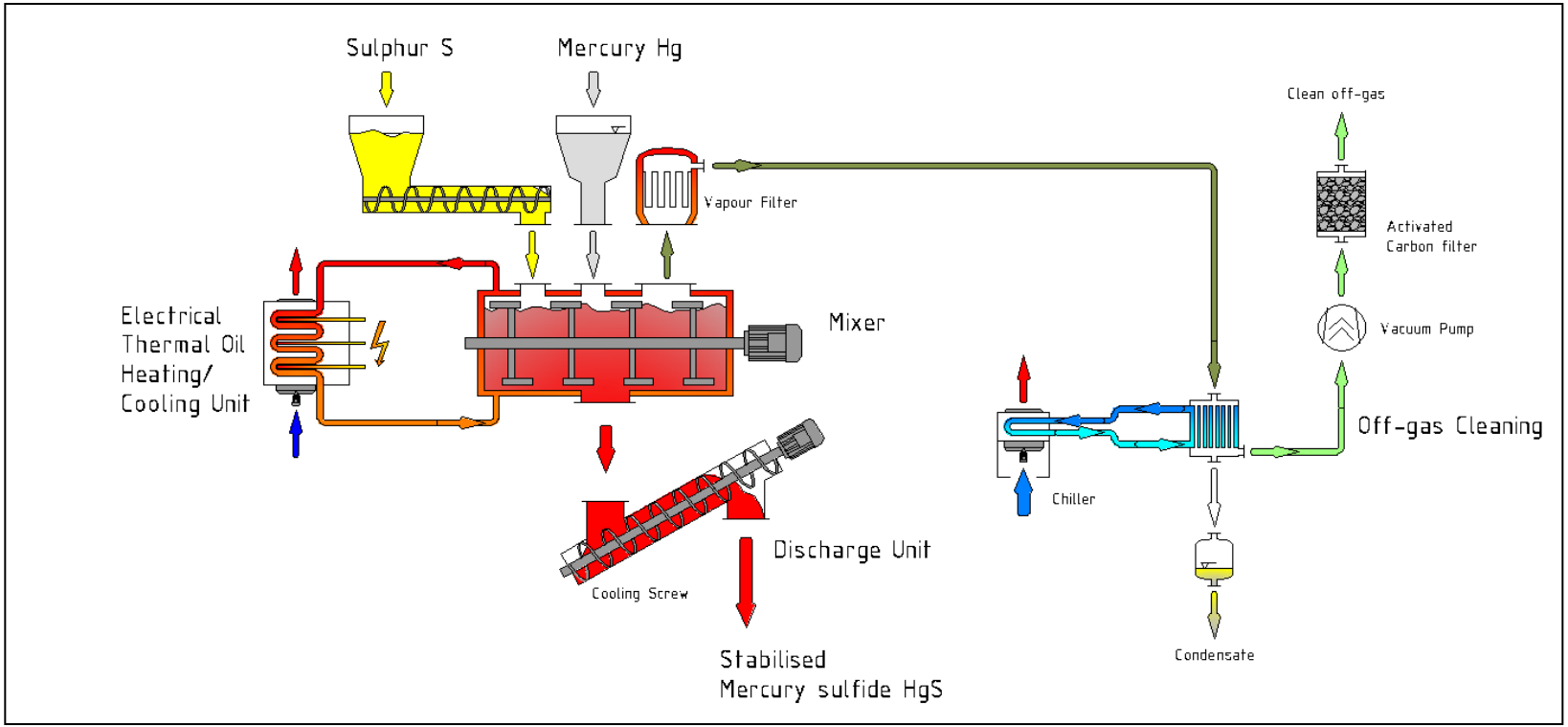
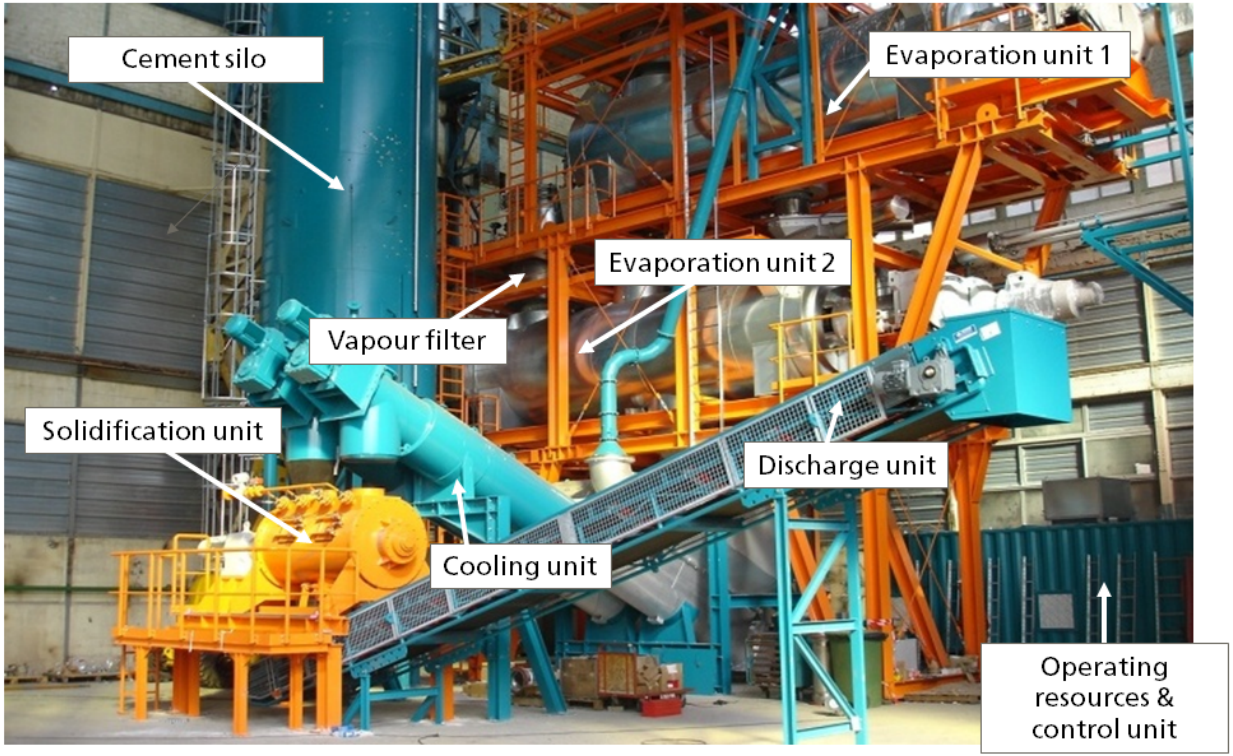
VaCure Mercury Stabilisation Unit



VaCure Mercury Stabilisation Unit

Example Contaminated soil



Example Mercury Waste- Oil & Gas Industry

What´s unique about econ industries?

only company 100 % focused on supplying turn-key units for the treatment of hazardous wastes and contaminated soils

reliable business with a history of more than 22 years of experience in industrial hazardous waste applications

deeply rooted in German machinery manufacturing with 100 % of our supplies `*Made in Germany*´ and DIN ISO 9001 certification

since two decades committed to German HSE standards with more than 30 turn-key industrial waste treatment plants in operation

based in the premium living and economic `Starnberg AmmerSee´ region between Munich and the Alps…

econ industries GmbH
Schiffbauerweg 1
82319 Starnberg | Germany

Phone: +49 (0)8151 446 377- 0
Fax.: +49 (0)8151 446 377- 99

www.econindustries.com
info@econindustries.com

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