



Technology Fact Sheet

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Lukoil Perm using Coking Process from Lummus Technology

Lummus Technology, a CB&I company, has been awarded a contract from Lukoil for the license and basic engineering of a grassroots delayed coking unit. The coker will be designed to process 6,100 tonnes per day of heavy feedstocks and will be located at Lukoil's refinery in Perm, Russia.

Lummus Technology's proprietary delayed coking technology will enable Lukoil to economically produce two grades of specialty coke from vacuum resid and other heavy feedstocks in order to meet the coke quality requirements and light product needs in the region.

- Owner :** Lukoil Perm
- Location:** Perm, Russia
- Process:** Delayed Coking
- Capacity:** 6,100 tonnes per day
- Production:** Four drum coker using Lummus Technology's proprietary delayed coking technology to produce two grades of specialty coke from vacuum resid and other heavy feedstocks.
- Technology:** Delayed Coking Technology from Lummus Technology
- Description:** Delayed coking is a semi-batch process using alternating drums that are switched off-line after filling. Support facilities include closed blowdown, coke cutting and handling and storage, and a water recovery system.
- Hot residual oil is fed to the bottom of the fractionator where it mixes with condensed recycle. The combined stream is heated in the furnace to initiate coke formation in the coke drums. Coke drum overhead vapor flows to the fractionator where it is separated into wet gas, unstabilized naphtha, light gasoil, heavy gasoil, and recycle.
- During the coke drum steam out and cooling period, all steam and hydrocarbon vapors are directed to the blowdown system where they are recovered. After the coke drum cooling cycle is complete, the coke is hydraulically cut from the drum and dropped into a pit or pad, where water is separated from coke and recycled.

CB&I Advantage: As refiners look to add value by upgrading heavy feedstocks to more valuable light products, Lummus Technology's coking technology gives the refiner the ability to meet the coke quality requirements and light product needs. Lummus Technology's proprietary delayed coking technology is one of the most cost effective routes for converting/upgrading heavy residual stocks to more valuable lighter distillate products and coke. The current design is based on several decades of continual refinement and accumulated data from over 60 commercial installations. Lummus Technology's delayed coking technology emphasizes high reliability and flexibility while meeting today's more rigorous environmental and safety requirements.

Benefits:

FEATURES	BENEFITS
Extensive commercial and pilot plant data base; predictive tools	Optimizes operating conditions and product slate
API sludge disposal process	Provides sludge disposal capability
Special coking heater design	Maximizes run length; high efficiency
Online heater decoking	Higher on-stream factor
Proprietary coke pit/pad and coke drum structure design	Reduced investment and maintenance costs
Automated flange unheading system	Enhanced operational safety; shorter cycle time
Advanced control system	Operating cost savings
Environmentally advanced design	Reduces fugitive emissions and waste effluents
Coke drum mechanical design	Maximizes drum life for all drum sizes
Low recycle design	Maximizes distillate production

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