

Catalytic Dewaxing

February 8, 2021

In news : Recently, The Prime Minister laid foundation stone of Indian Oil Corporation Ltd's second Catalytic Dewaxing unit at Haldia

Key update

The Catalytic Dewaxing Unit is estimated to be built with rupees one thousand and 19 crores and to be completed by April 2023. Once commissioned, this will lead to import substitution in the spirit of Atmanirbhar Bharat and save foreign exchange of 185 million US Dollars.

About Indian Oil Corporation Ltd's second Catalytic Dewaxing unit

- The project objective is to augment API Group-II & III Lube Base Oil (LBO) production with the capacity of 270 TMTPA considering 8000 hours/year of operation
- Unconverted oil (UCO) from existing once through the Hydrocracker unit (OHCU) is being processed in the existing Feed Preparation unit (FPU). Distillates from FPU are being processed in the existing Catalytic dewaxing unit (CDWU-I) to produce Lube Base Oil (LBO).
- The new proposed CDWU-II unit will produce Gr-II & Gr-III lube base oil from the heart cuts generated from FPU.
- The new CDWU-II unit along with the existing Catalytic Dewaxing Unit will process UCO heart-cuts and LBO production will increase from 170 to 424 TMTPA.
- The feed for the catalytic dewaxing unit is waxy light to heavy blend of unconverted oil.

Input feed stream to Catalytic Dewaxing unit(CDW)-II

- Feedstock to CDWU-II will be unconverted oil (UCO) from

- the Once Through Hydrocracker (OHCU).
- UCO from upstream OHCU is fed to existing Feed Preparation Unit (FPU) for generation of waxy feed stocks for the existing CDWU-I (Mode 1 Operation) and the new CDWU-II (Mode 2 Operation).
 - The CDWU-II is designed to process 0.270 MMTPA of waxy feed in block operation. Four (4) distinct waxy feeds from the FPU will be processed in the CDWU-II in block operation for each design feed case:
 - Waxy 70N
 - Waxy Light UCO (Waxy 4cSt)
 - Waxy Heavy/Light Blend UCO (Waxy 6cSt)
 - Waxy Heavy UCO (Waxy 8cSt)

What is Catalytic Dewaxing?

- Catalytic dewaxing is a process that ensures that oil products like diesel are liquid at the specific temperature ranges in which they are to be used in order to meet the cold flow requirements essential for the commercial success.
- Although included under the separation processes, catalytic dewaxing is actually a low-severity conversion process involving a selective catalytic cracking of n-paraffins. Because of removing wax (long chain n-paraffins) by chemical reaction, the process is called dewaxing.
- The main purpose of dewaxing is to remove hydrocarbons that solidify readily (i.e., wax) for making lubricating oil base stock with low pour points (-9 to 14°F).

Indian Oil Corporation Ltd

- Indian Oil Corporation Limited (IOCL), IndianOil, is an Indian public sector oil and gas company headquartered in New Delhi. It is the largest commercial oil company in the country, with a net profit of Rs. 19,106 crore (US\$2.848 billion) for the financial year 2016–17

- IndianOil's business interests overlap the entire hydrocarbon value-chain, including refining, pipeline transportation, marketing of petroleum products, exploration and production of crude oil, natural gas and petrochemicals
- Indian Oil accounts for nearly half of India's petroleum products market share, 35% national refining capacity (together with its subsidiary Chennai Petroleum Corporation Ltd., or CPCL), and 71% downstream sector pipelines through capacity.
- The Indian Oil Group owns and operates 11 of India's 23 refineries with a combined refining capacity of 80.7 million tonnes per year