

A high-magnification, grayscale micrograph of a material surface. The surface is textured and granular. A prominent feature is a large, circular, layered structure on the right side, resembling a cross-section of a pipe or a biological cell wall. The layers are concentric and have a fibrous or crystalline appearance. The overall image has a dark, industrial feel.

EZ load[®]

THE EASY TOTSUCAT[®]
SOLUTION

THE
SMARTEST
WAY

TO START UP YOUR HYDROTREATER

 EURECAT

EZ load[®]

THE EASY TOTSUCAT[®]
SOLUTION

REVOLUTIONARY



EASY

SAFE



If you have been waiting for a catalyst that is just as easy to load as an oxidic catalyst and provides a “Load & Go” start-up, then TOTSUCAT[®] EZload[®] is YOUR activated catalyst. It is delivered in big bags.

**YOUR ACTIVATED
CATALYST
EASIER TO LOAD THAN EVER**



100%
OF THE PROBLEMS
OF *IN SITU* ACTIVATION
ARE ELIMINATED!

Wouldn't it be efficient to let your operators focus on refining oil and your engineers on improvement projects? Rather than having them spend their time on activating catalyst and on dealing with the resulting problems? If you order your hydrotreating or hydrocracking catalyst activated with TOTSUCAT[®] EZload[®], it will be delivered ready-to-use, in big bags and non self-heating. You can start it up without *in situ* activation, fast and fail-proof. TOTSUCAT[®] EZload[®] activation can be ordered through any catalyst manufacturer or with EURECAT directly.

***IN SITU* ACTIVATION – AND WHY REFINERS MOVE AWAY FROM IT**

CoMo, NiMo and NiW catalysts must be activated (sulfided) before they do any work. This can be done either off-site (TOTSUCAT[®]) or *in situ*. The activation is a reaction with H₂S and H₂, producing sour water and heat. *In situ*, the H₂S comes either from an external source of sulfur,

THE
DEFINITIVE
SOLUTION
TOTSUCAT[®]



OF THE TOTSUCAT[®] USERS
NEVER GO BACK
TO *IN SITU* SULFIDING



OF THE NAPHTHA UNITS
IN EUROPE AND NORTH
AMERICA ALREADY START
UP WITH TOTSUCAT[®]

e.g. DMDS, or from presulfurization (impregnation with a sulfur bearing chemical before loading). *In situ* activation takes time: 24-48h plus the time lost due to problems. Some of these issues are high exotherms, excessive flaring, H₂ shortage, safety and operational issues with H₂S and smell problems. Any interruption of the activation is a risk for the catalyst. An evaluation of the actual cost of *in situ* activation should include increased unit down time, stand-by time for the sulfiding chemical provider and the potential for a less than perfect catalyst activation. TOTSUCAT[®] EZload[®] ensures a successful start-up and is a largely preferred alternative.

EZ load[®]

THE EASY TOTSUCAT[®]
SOLUTION

A COATING PROCESS THAT
MAKES YOUR LOADING

**SAFER
AND FASTER**

STEP

1

CATALYST
FRESH OR REGENERATED



TOTSUCAT[®]
ACTIVATION



**COATING
PROCESS**
EZload[®]



TOTSUCAT[®] EZload[®] can be performed on fresh or regenerated catalysts. It is cheaper to use a regenerated catalyst activated with TOTSUCAT[®] EZload[®] than a fresh non-activated catalyst!

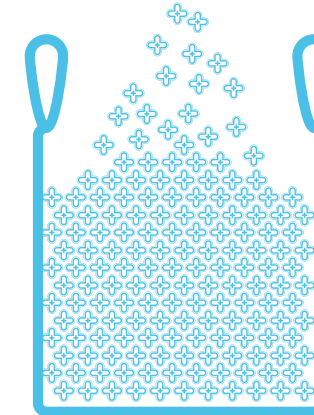
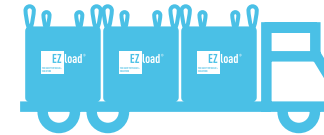
TOTSUCAT[®] is our patented activation process that converts the metal oxides into sulfides. *In situ* activation will not be required because TOTSUCAT[®] catalyst is already active and ready-to-use.

The new EZload[®] coating process is carried out after the activation in our TOTSUCAT[®] plant. It is a revolutionary and cost-effective way to protect catalyst against contact with oxygen.

STEP

2

DELIVERY
IN BIG BAGS



Conventional TOTSUCAT[®] as well as presulfurized catalysts are classified as self-heating material and must be transported in UN drums or rental bins. Our new and unique EZload[®] coating overcomes this issue and allows TOTSUCAT[®] catalyst to be transported and stored in big bags without the self-heating classification. "Pre-bagging" before loading in the reactor is no longer required!

STEP

3

AIR LOADING
FAST, SAFE AND DUST-FREE

TOTSUCAT[®] EZload[®] can be loaded in air just like any oxidic catalyst. The EZload[®] coating also eliminates the formation of and exposure to carcinogenic catalyst dust during the loading.

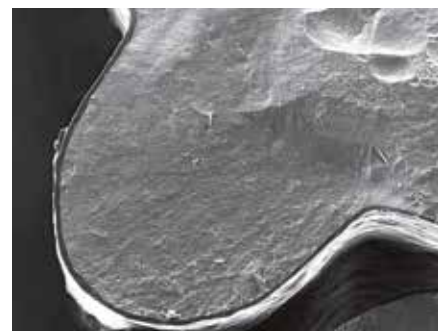


TOTSUCAT® EZLOAD®: ACTIVATED CATALYST KEEPING IT COOL

To make the loading of TOTSUCAT® catalyst just as easy as starting it up, EURECAT took the bold decision to develop a TOTSUCAT® suitable to be packed in big bags, classified as non self-heating. The invention is called EZload®.

ABOUT THE EZLOAD® COATING

The secret of EZload® is the patented coating, which protects the activated catalyst against contact with oxygen and thereby prevents the self-heating reaction with the metal sulfides on the catalyst. The coating is ultra-thin and consists of a non-toxic compound that is free of organic solvents. It was carefully selected so as not to create any hazard to the catalyst handlers. The EZload® coating process is a continuous process with very rigorous on-line quality control of the coated catalyst and its self-heating properties. This is how we ensure the safe delivery of each big bag of TOTSUCAT® EZload®.



BENEFITS OF THE EZLOAD® COATING

The first and main benefit of the EZload® coating is the fact that it allows to transport and store TOTSUCAT® catalyst simply in big bags. But there are other

benefits: the coating considerably improves the mechanical strength of the catalyst. Catalyst attrition and the generation of carcinogenic dust during catalyst handling are reduced to the absolute minimum. This is a major improvement for all personnel involved in reactor loading, and will also minimize the dust issues during gravity unloading at the end of the run. The elimination of dust generation during the loading helps to minimize the pressure drop in the reactor as well.

STARTING UP WITH TOTSUCAT® EZLOAD®

TOTSUCAT® catalyst is already active when loaded into the reactor. The start-up procedure is extremely simple: just like starting up after a shutdown without catalyst replacement. The *in situ* activation (needed in case of oxidic or presulfurized catalyst)

43,000

TONS OF TOTSUCAT®
CATALYST STARTED
UP SUCCESSFULLY,
WORLDWIDE

IN SHORT

- Delivered in big bags
- Loaded in air, dust-free
- Started up in the safest, fastest and easiest possible way

can be skipped completely. This means a considerable time gain and eliminates a long list of hassles and potential problems associated with the *in situ* activation, such as H₂S, an excessive exotherm, recycle gas compressor problems or hydrogen shortage. An emergency interruption of the start-up is not a risk for TOTSUCAT® catalyst. During the start-up procedure, the EZload® coating decomposes under hydrogen before the Start Of Run temperature is reached, and leaves the catalyst. The coating decomposition product is a minute quantity. Its compatibility with the operating conditions and product specifications of the various refining and petrochemical applications has been tested extensively.

SPECIFIC TOTSUCAT® APPLICATIONS

TOTSUCAT® activation can be applied to any CoMo, NiMo or NiW catalyst, in refining or petrochemical applications. Specific versions offer additional benefits: TOTSUCAT® CFP (Cracked Feed Protection) allows introduction of cracked (olefinic) feedstocks immediately at start-up. TOTSUCAT® HC-AP (Acidity Protection) contains an amine to neutralize the excess acidity of fresh zeolite Hydrocracking catalyst and allows to reach the design conversion safely and fast.



WHAT THEY SAY ABOUT TOTSUCAT® AND EZLOAD®...



Albemarle has lots of experience applying TOTSUCAT® on our STARS® and non-STARS® catalysts. It greatly simplifies the start-up of a hydrotreater, and reduces several risks and costs. Having a non self-heating TOTSUCAT® in big bags is a welcome improvement and we are looking forward to its introduction on the market.

Peter-Paul Langerak,
Business Director,
Albemarle Catalyst Company
B.V., Clean Fuel Technologies

Using TOTSUCAT® catalyst shortens our start-up time significantly thus allowing us to produce on spec product faster. Furthermore it prevents the testing of the high H₂S gas which is a serious safety risk. We are extremely happy with the TOTSUCAT® catalyst.

Kevin Singh,
Principal Engineer
Technical Services Dept,
Engen Refinery, Durban (RSA)

The ready-to-use version is a very useful option to our catalysts portfolio. Axens has delivered thousands of tons of TOTSUCAT® catalysts in Hydroprocessing applications from Naphtha HDT to Hydrocracking and supervised loadings, start-ups and operation. We are glad to hear about the new EZload® that can be loaded without nitrogen backup. It provides enhanced HSE protection for all personnel involved.

Colin Baudouin,
Associate Sales Director
Axens - Catalysts & Adsorbents
Business Unit



EURECAT was created in 1978 and has become the leading global supplier of off-site catalyst activation and regeneration services, toll manufacturing and customized catalyst treatments, resale, metals recovery and reactor management services on-site. Our shareholders are IFP Energies Nouvelles and Albemarle Corporation. The EURECAT group counts 7 production locations and close to 500 employees, worldwide. It is EURECAT's goal to help customers increase their unit reliability and availability, reduce their catalyst expense and improve their catalyst changeouts, through innovative solutions, quality services and expertise.

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