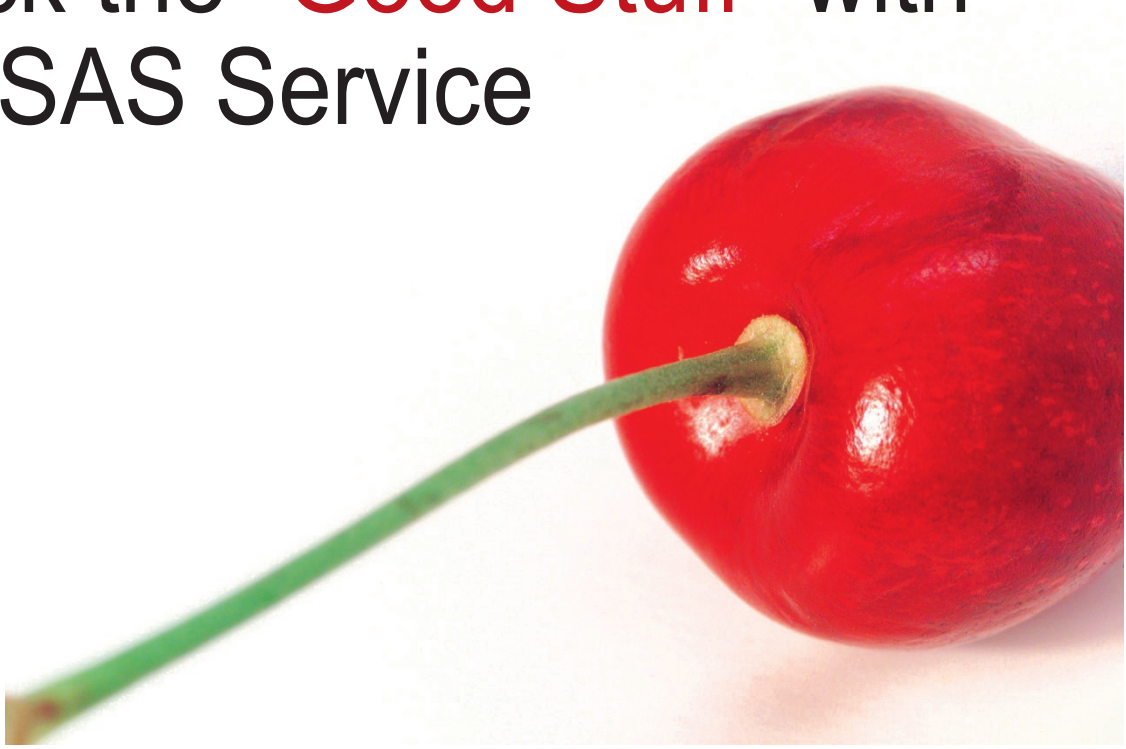
Cherry Pick the "Good Stuff" with Eurecat's SAS Service



CATALYST SERVICES

- **SPECIALTY REGENERATION AND REJUVENATION**
  Get >90% activity from Special Regeneration and/or Rejuvenation. Our techniques are much different than a simple carbon burn.
- **CATALYST RESALE**
  Why buy fresh catalysts when regenerated catalysts with "like-fresh" activity are available? Eurecat stocks a full line of activity-tested regenerated catalysts.
- **ACTIVITY TESTING**
  Don't just rely on surface area and poison levels. Eurecat now has two multi-tube test units that measure the true activity of the catalyst at ULSD conditions.
- **PRESSURE DROP TESTING**
  Check the "real world" delta P before loading.
- **TOTSUCAT PREACTIVATION**
  Allows the fastest and safest startup possible.

SAS MAKES SURE YOUR HIGH QUALITY CATALYST IS REUSED AND NOT WASTED

Eurecat's exclusive Sample, Analyze, and Segregate (SAS) service is the most comprehensive program available for separating good spent catalyst from the "not-so-good". With this service, a clear contamination profile can be developed, enabling the refiner to "cherry pick" the containers of catalyst that contain clean regenerable catalyst. SAS ensures that only high activity catalyst is regenerated and returned to the customer, while heavily contaminated catalyst is quickly sent out for metals reclamation.

The SAS process begins with labeling and numbering the bins as the spent catalyst is unloaded. Accurate records enable the customer to determine the position of the corresponding spent material inside the reactor. Once the entire catalyst load arrives at Eurecat's site, samples are sent to our lab for a complete chemical and physical analysis. The lab report is then consolidated into graph illustrating the contaminant profile and a segregation strategy is implemented.

For catalyst that is deemed as unregenerable, Eurecat will take care of the metal reclaim or ship the unusable portion to a processing site of your choice. SAS can also be used to check the efficiency of your metal traps.

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WWW.EURECAT.COM

SAS

What is SAS? Scandinavian Airlines?
The Society of Amateur Scientists?
Surfers Against Sewage?
No, no, and no!

SAS is Eurecat's unique Sample, Analyze, and Segregate service.

With SAS, numerous samples of spent catalyst are carefully analyzed for contaminant metals, carbon and sulfur content, and surface area. From this data, a contamination profile (Figure 1) can be developed. With graphical profile, the process of segregating the material is straight-forward.

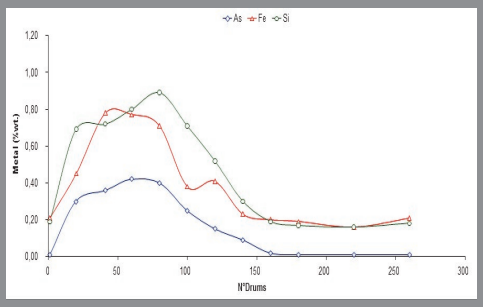


Figure 1—Arsenic, Iron, and Silicon Profile

Once the portion of the catalyst you want back is identified, an activity test can be performed on a composite sample in our multi-tube pilot unit at ULSD conditions. Pilot plant testing guarantees that the regenerated catalyst will give you the performance your units require.

EURECAT

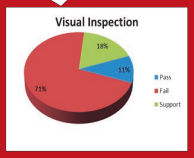
Catalyst Regeneration

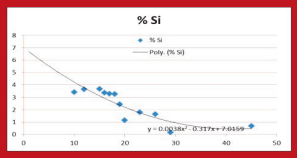
CASE STUDY

SAS FOR A ULSD UNIT - A complete Sample, Analyze, and Segregate (SAS) service was performed on catalyst from a ULSD reactor system with four beds containing a total of 760,000 pounds of CoMo catalyst. The catalyst from the Top Beds of both reactors was vacuumed out, while the Bottom Beds were gravity dumped. All of the bins were numbered in order as the material was unloaded. This allowed Eurecat to create a metals contamination profile for all of the beds so that the quality of the catalyst from each could be determined.

Lead Reactor

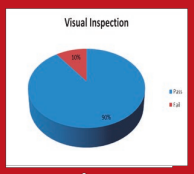
120K lbs. CoMo

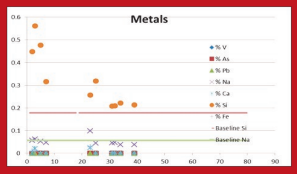




Send to Reclaim

250K lbs. CoMo



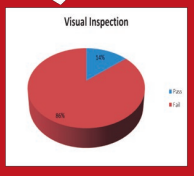


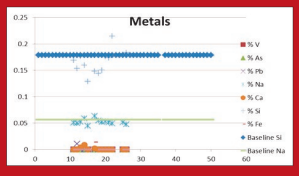
Regenerated 95% RVA

The analysis showed that about one half of the catalyst in the Lead Reactor Top Bed and all of the Lag Reactor Top Bed contained clean catalyst that was suitable for regeneration. Unfortunately, since both Top Beds were vacuumed out, the particle length was much too short for regeneration and therefore all of the material had to be discarded. The Bottom Beds were both successfully rejuvenated, recovering 500K pounds of catalyst with virtually the same activity as fresh ULSD catalyst. The customer achieved another full cycle after reloading this material.

Lag Reactor

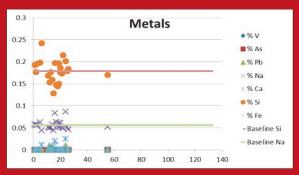
140K lbs. CoMo





Send to Reclaim

250K lbs. CoMo



Regenerated 97% RVA

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