



Impact of Lube-oil Phosphorus on Diesel Oxidation Catalysts

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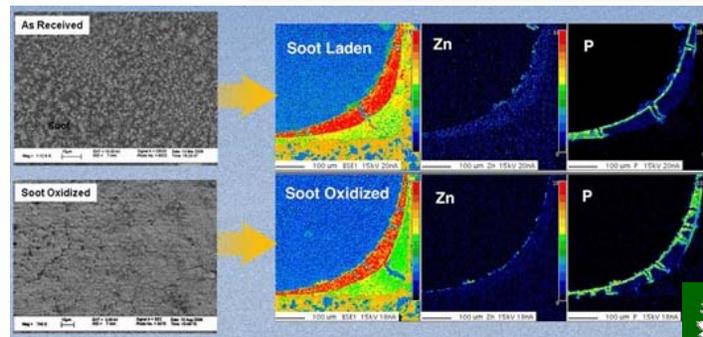
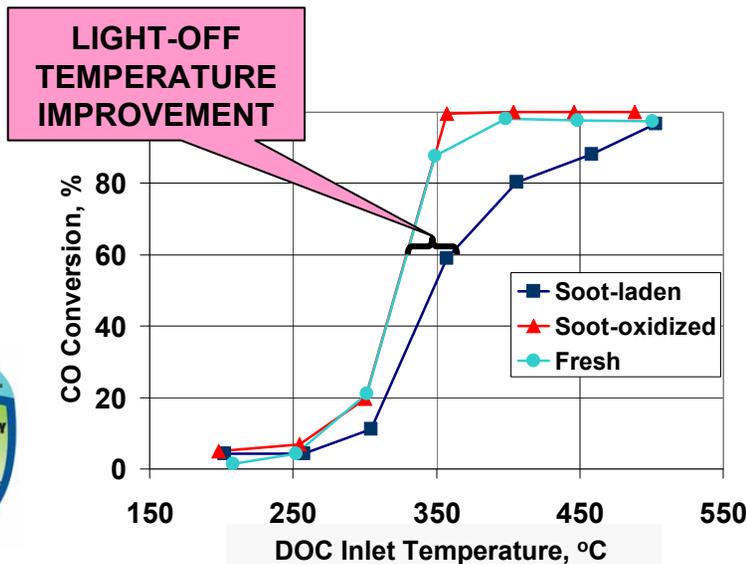
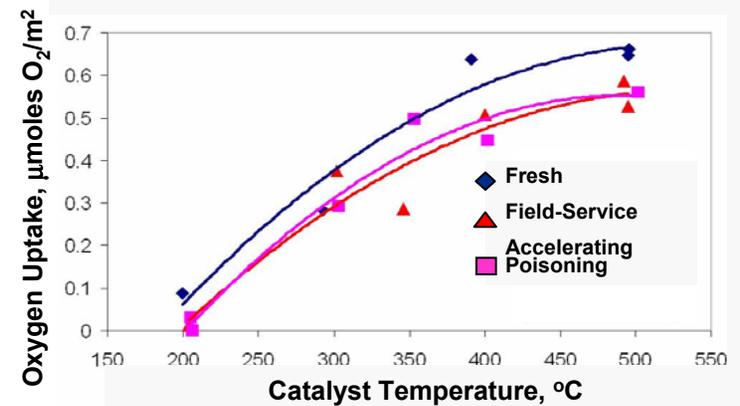
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Objective: Isolate effects from phosphorus poisoning and soot fouling in field-aged and accelerated phosphorus-poisoned DOCs

- Phosphorus leads to $CePO_4$ or ZnP_2O_7
 - Depends on temperature and oil pathway
- Soot also accumulates on washcoat
 - creates diffusion barrier
- Soot fouling and phosphorous effects can be isolated with bench reactor
 - Oxidization of soot occurs above $450^\circ C$
 - Phosphorus remains unchanged
- THC and CO light-off temperature restored to fresh performance

- Phosphorus adsorbs on DOC washcoat as $CePO_4$
 - Decreases OSC
 - Levels don't degrade THC and CO light-off in our tests



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