

# Catalyst & Technology

February/March 2004

News

## Are You Ready for ULSD?

Technical Experts and Products from Criterion – “The Clean Fuels Company” – Are Here to Help.

Refiners in the USA and Canada are finalizing their process solution decisions for the production of ultra low sulphur highway diesel fuels (15 ppmw sulphur) in 2006. Criterion has been working with several refiners in Western European and Asia Pacific who have been producing highway diesel of 10-50 ppmw sulphur for the past several years.

### Legislated, Proposed and Voluntary Sulphur Levels in Diesel Fuels

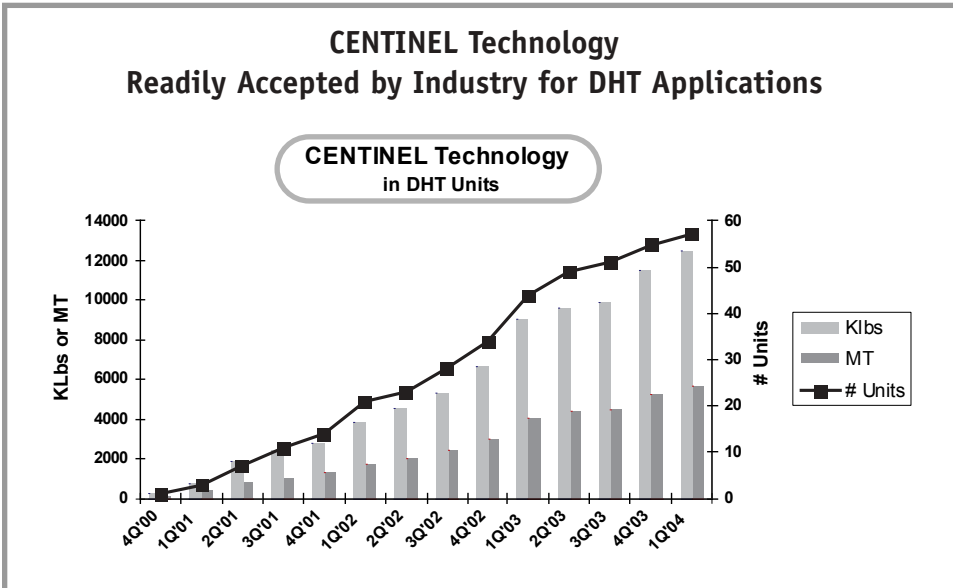
Region	Year	Diesel Fuel S ppmw	
		On Road	Off Road
European Union	2005	50	>500
	2008-9	10	10
United States and Canada	2006	15	>500
	2007	15	500
	2010	15	15
Japan	2004	50	>500
Korea	2006	50	>500
Australia	2006	50	>500

Proposed or Voluntary



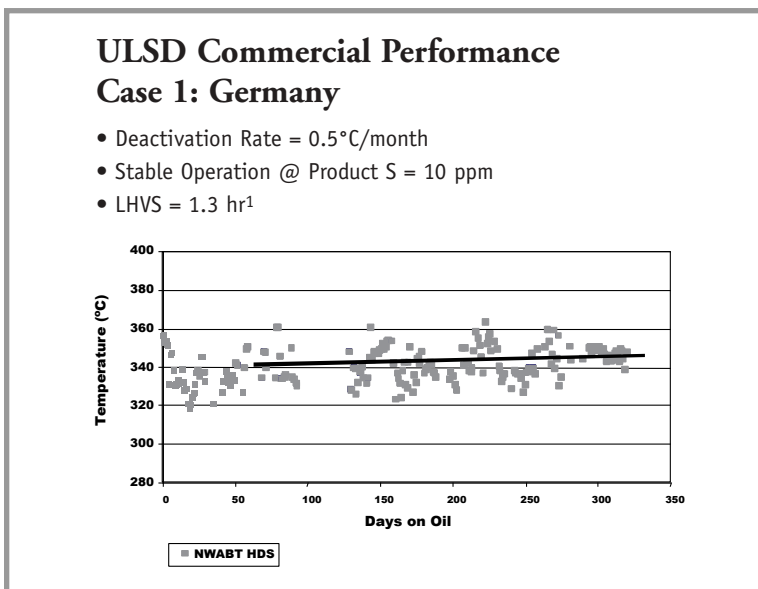
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To enhance ULSD catalyst activity and stability, Criterion's CENTINEL Technology was launched in 2000. After 4 years, DC-2118 (CoMo) and DN-3110 (NiMo) have become well accepted market leading catalysts with over 50 commercial applications.



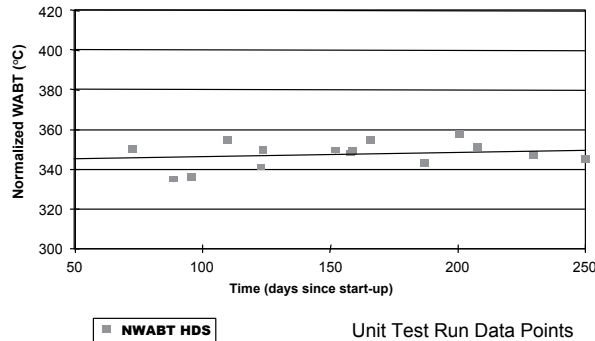
### Commercial Performance

Criterion's CENTINEL catalysts, DC-2118 and DN-3110, continue to demonstrate outstanding stability in ULSD service.



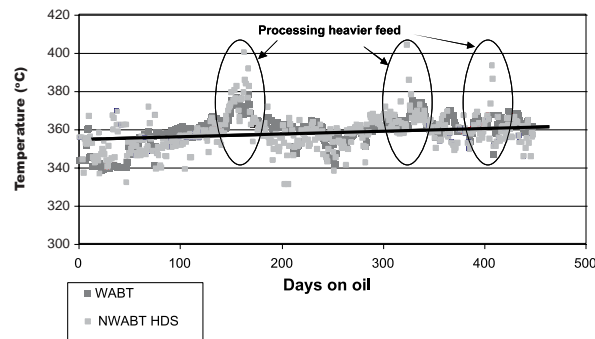
### ULSD Commercial Performance Case 2: Denmark

- Deactivation Rate = 0.3°C/month
- Stable Operation @ Product S = 50 ppm
- Processing Coker Gasoil



### ULSD Commercial Performance Case 3: Former Soviet Union

- Deactivation Rate = 0.3°C/month
- Stable Operation @ Product S < 50 ppm
- Intermittent Processing of Heavy Feeds



### Future Clean Fuels Challenges

Criterion is proud to have been selected to work as part of numerous refiners' technical teams in providing ULSD solutions over the past several years. We realize many challenges lie ahead for the most important part of our business – the customer – and Criterion will continue to set the benchmark for market leading ULSD catalysts and services.

**Important:**

All information contained in this document is considered accurate at the time of the testing, based on the equipment, and specific conditions and other limitations during the testing process. It is being furnished upon the express condition that the user will make its own assessment to determine the accuracy and applicability for the user's particular purpose.

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