



Base Oils I: Fundamentals of the Base Oils Business

8:00AM EST

Module 1

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| 8:00 | Welcome and introduction to the course |
| 8:10 | Crude and Refining Overview <ul style="list-style-type: none">• World's largest base oil refining companies• Crude types, pricing, and valuation• Crude for base oils vs. fuels refining |
| 9:10 | Base Oil Manufacturing: Solvent Processing <ul style="list-style-type: none">• Base oil definitions and terminology• Historical manufacturing: solvent processing• Example: Arab Light 95 VI via solvent processing |
| 9:55 | Break |
| 10:10 | Base Oil Manufacturing: Hydroprocessing <ul style="list-style-type: none">• Hydroprocessing terms and general overview• Newer technology: hydroprocessing• Example: Arab Light 95 VI via hydroprocessing |
| 10:55 | Summary and conclusions |
| 11:00 | End of day one |



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Module 2

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| 8:00 | Base Oil API Groups & Qualities <ul style="list-style-type: none">• The API base oil groups: I, II, III, IV and V• Quality comparison of the different API Groups• Discussion: are the API Groups still relevant today? |
| 8:50 | Base Oil Manufacturing: Hybrid Processes <ul style="list-style-type: none">• Hybrid solvent processing + hydroprocessing• Hybrid fuels and base oil hydrocracking |
| 9:35 | Break |
| 10:05 | Base Oil Demand (Finished Lubricants 101) <ul style="list-style-type: none">• Correlating base oils to finished lubricants• Transportation, industrial and process oil segments• Base oil quality trends within each sector |
| 10:45 | Summary and conclusions |
| 11.00 | End of day two |



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Module 3

- 8:00** **Discussion: Global and Regional Quality Differences**
- Base oil quality differences by company and by region
 - Key reasons for regional differences in manufacturing and supply quality
 - Going forward: why does regional crude quality matter?
- 8.45** **Lubricant additives & supply chains**
- Additive introduction
 - Major additive functions
 - Supply chains - blending and packaging
- 9.35** **Base oils industry survey**
- 9:45** **Break**
- 10.00** **Future trends – disruptive scenarios**
- Here come Electric Vehicles – a forecast
 - Gas-to-liquids (GTL) base oils
- 10.45** **Course conclusion**
- 11.00** **End of the course**