LUPATECH CANADA
CALGARY, AB CANADA
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Hydrogen Manufacturing (Steam Reforming)

Overview

Hydrogen is needed for multiple refinery operations, mainly to deal with products with high sulfur content. In this program, a common method of hydrogen manufacturing: Steam-Methane Reforming is presented. SMR process is commonly used in locations where natural gas is available (source of methane). In this program the different stages needed before the reformation, the reformation process, Hydrogen separation and purification are covered. In each stage of the process a section of troubleshooting is included to share with the student teacher's experiences in the operation of these units.

Program Outline

1. **Introduction**
   a) Hydrogen use
   b) Hydrogen Manufacturing Methods
   c) Advantages and Disadvantages
2. **Feed Quality & Treatment**
   a) Natural Gas/Produced Gas
   b) Steam
   c) Contaminants
   d) Troubleshooting
3. **Steam Hydrocarbon Ratio**
   a) Concept
   b) Calculation
   c) Limitations
   d) Troubleshooting
4. **Reaction Zone**
   a) Reformer
   b) Catalyst
   c) Troubleshooting
5. **Separation Zone**
   a) Objective
   b) Cooling
   c) Condensate Recovery
6. **Steam Generation**
   a) BFW
   b) Condensate
   c) Quality
   d) Troubleshooting
7. **Hydrogen Purification**
   a) Methods
   b) Troubleshooting

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Who should attend?

Program is intended for Engineers, Operators with little or no knowledge of Hydrogen Manufacturing, but also for those with experience that will be find the troubleshooting section the most valuable. All will be benefit from this program.

Learning Outcome:

After the course, the participants will able to:

- ✓ Understand the key function of the hydrogen in a refinery/upgrader.
- ✓ Understand the different methodologies for hydrogen Manufacturing.
- ✓ Understand the processes for steam reforming including main operating problems.

Instructor:

Germán Luna-Mejías, BSc ChE, P. Eng., FS Eng. (PH&RA).
Member of AIChE, CSChE and Professional Engineer in Alberta, Canada. He holds a Chemical Engineer Degree from Universidad Simon Bolivar (Venezuela); with more than 35 years of experience in the Oil & Gas Industry in Venezuela and Canada. Broad experience in Process Engineering, Operation's Engineering, Process Safety and Volunteer Firefighter for Refinery Operations. He was in charge of the commissioning, startup and initial operation of a Steam Reforming Plant and has a extensive troubleshooting experience in Hydrogen plants. He is the founder of LUPATECH CANADA.

Additional program details

- This program is 8 hours long. (2 days x 4 hrs each is also available).
- International standards (CCPS, API) are used in this training.
- Completion certificate available
- Training available virtual & on-site for larger groups.

Information & Registration :

- Email us: **german@lupatechltd.ca**