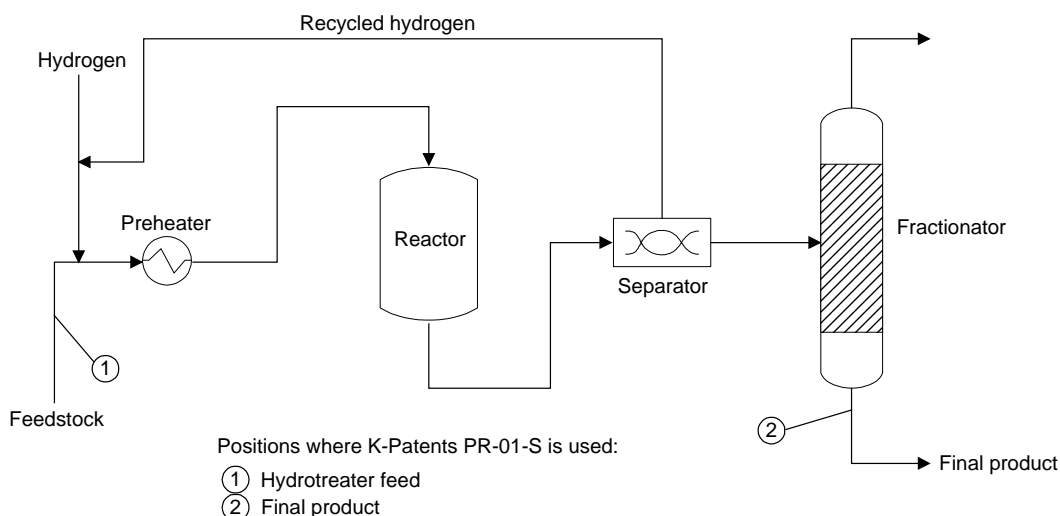


## Hydrotreaters / Aromatic Content Measurement



### Hydrocarbon

### Introduction

Hydrotreating is a refining process used to remove impurities and to saturate olefins and aromatics in all final and intermediate refinery feedstocks, including diesel, jet fuel, naphtha, gas oil, and coker feed. The impurities removed include sulphur, nitrogen and metals. The purpose of saturating the aromatics and olefins is to reduce their content in the hydrocarbons and to improve the feed stock to the other refinery processes such as the catalytic cracker. The process also has the benefit of some mild cracking of heavier components.

### Application

The hydrocarbon is mixed either with hydrogen or a hydrogen enriched gas and heated before entering the reactor. The hydrogen then reacts with any sulphur to form hydrogen sulfide or with any nitrogen to form ammonia. Any free hydrogen is then available to react and it saturates the aromatic and olefin compounds. This reaction thereby reduces the total percentage of aromatics and olefins in the feed.

K-Patents Process Refractometer PR-01-S-EX/FM provides an in-line real time indication of the aromatic content of the hydrocarbon stream. There is a well defined relationship between refractive index and aromatic content in hydrocarbons. The typical measurement range is between 1.400 to 1.4630 at 25°C (77°F).

### Installation

K-Patents PR-01-S-EX/FM gives best benefits when mounted in the hydrotreater feed stream or to measure the final product. The output signal from the K-Patents PR-01-S-Ex/FM is used either to change the reactor temperature, the hydrogen make-up ratio or the blend to the feedstock to yield desired aromatic ratio.

The application should be measured with an intrinsically safe sensor and a steam wash system is also recommended.