

## Cracking of hydrocarbons

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### Principle

Under the influence of energy, e.g. heat, light, and electric discharge, all chemical compounds can be broken down into smaller fractions. The reaction can continue up to the elements themselves. In general, low-volatile crude oil components are disintegrated as of approximately 400 °C. The presence of a catalyst lowers the activation energy of this cracking reaction so that the decomposition products are formed already at lower temperatures. Saturated carbohydrates are then transformed into smaller saturated and unsaturated molecules. Cycloalkanes are dehydrated to aromatic compounds, straight-chain molecules to branched-chain molecules, and branched-chain molecules to cyclic molecules.

### Benefits

- Secure connection of the items by GL screw joint system
- Stable and safe setup due to solid stand material

### Tasks

Investigate the cracking of hydrocarbons using a model experiment.

### Learning objectives

- Cracking
- Hydrocarbons
- Catalyst

## Scope of delivery

Support base DEMO	02007-55	1
Support rod, stainless steel, different lengths	02037-00	2
Support rod, stainless steel, different lengths	02031-00	1
Right angle boss-head clamp	37697-00	5
Universal clamp	37715-01	3
Gas-syringe holder with stop	02058-00	1
Ring with boss head, i. d. = 10 cm	37701-01	1
Iron basin, d 100 mm	33201-00	1
Round-bottom flask, 50 ml	MAU-27220001	1
Round bottom flask, 100ml, GL 25/12	MAU-27100001	1
Distilling bridge GL18/8	MAU-27228000	1
Vacuum adaptor, straight, GL25/12	MAU-27228500	1
Gas syringe, 100 ml, with 3-way cock	02617-00	1
Lab thermometer, w. stem, -10..+250C	38061-01	1
Beaker, Boro, high-form	46027-00	1
Porcelain dish 25ml, d 50mm	32516-00	1
Test tube rack, wood, for 6 tubes d= 22mm	MAU-20042200	1
Test tube, various lengths	37656-10	1
Rubber stopper, without hole	39254-00	1
Teclu burner, DIN, natural gas	32171-05	1
Safety gas tubing, DVGW, sold by metre	39281-10	1
Lighter f. natural/liquified gases	38874-00	1
Hose clip f. 12-20 diameter tube	40995-00	2
Rubber hose	39282-00	1
Bromine filler w. rubber cap	45100-00	1
Pasteur pipettes, 250 pcs	36590-00	1
Rubber caps, 10 pcs	39275-03	1

Spoon, special steel	33398-00	1
Wash bottle, plastic, 500 ml	33931-00	1
Rubber gloves, size L (9), one pair	39324-00	1
Wood splints, package of 100	39126-10	1
Glass wool 10 g	31773-03	1
Bead catalyst, 500 g	31761-50	1
Paraffin, 500 gr	30179-50	1
Sea sand, purified 1000 g	30220-67	1
Bromine-Solution, 250 ml	30046-25	1
Water, distilled 5 l	31246-81	1
Wire gauze with ceramic, 160 x 160 mm	33287-01	1