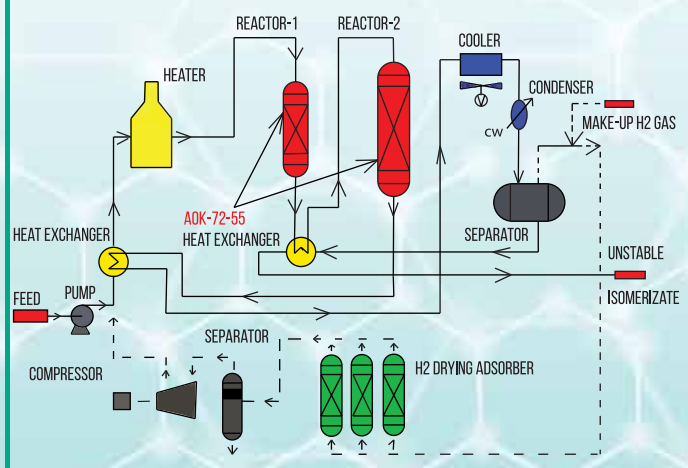
PFD OF LOW TEMPERATURE ISOMERIZATION REACTOR USING AOK-72-55



- No feedstock adsorption drying block is required;
- No aggressive chemicals are used; corrosion-resistant materials are not required;
- No wastes to be disposed;
- The recycle compressor HCG (Hydrogen Containing Gas) is available providing stable operation and ensuring guaranteed performance during the whole lifetime of AOK-72-55;
- Catalyst activation inside the reactors;
- Catalyst regeneration inside the reactors without catalyst discharge;
- Reduced OPEX due to the reduced recycle ensured by deeper naphthenic ring-opening;
- Low hydrogen consumption 0.15-0.35wt.% for reactor feedstock;
- Isomerate RONs of 82-84 can be obtained by "once-through" process;
- Isomerate RONs of 90-92 can be obtained by "full recycle" process;
- Isomerate is free of benzene/aromatics/sulfur.

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SKTB KATALIZATOR

OUR REFINING SOLUTIONS

LOW TEMPERATURE ISOMERIZATION OF C_5-C_6 PARAFFINS

CATALYST AOK-72-55

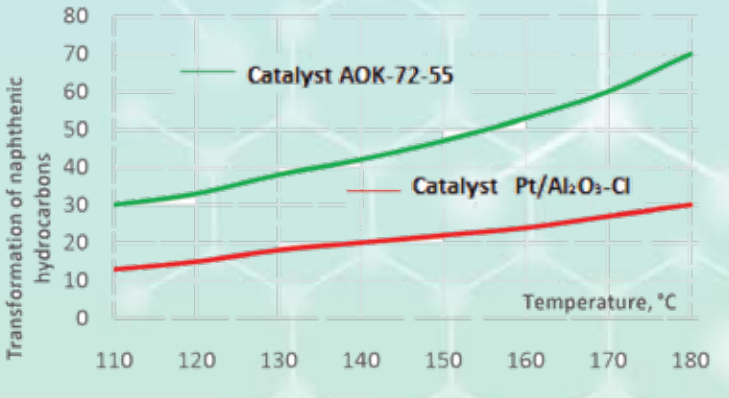
APPLICATION

AOK-72-55 is a platinum containing catalyst which is based on sulfated zirconia (chlorine-free) and is intended for low temperature isomerization of C_5-C_6 paraffins.

AOK-72-55 provides the same conversion degree of normal paraffins as the chlorinated alumina catalysts at operating temperatures 120-180°C.

FEATURES AND BENEFITS

- Resistant to skips of sulfur, nitrogen and water; process upsets do not result in irreversible loss of activity;
- Activity and conversion degree of normal paraffins competing with chlorinated alumina catalysts;
- The injection of a chloriding agent is not required to maintain catalyst activity;
- Is more advantageous for naphthenic ring-opening compared to chlorinated alumina catalyst;
- High selectivity contributes to low hydrogen consumption and decreases the content of low-octane C_7 naphthenic hydrocarbons;
- Resistant to fluctuations of feed space velocity: 0.5 – 3.0 h^{-1} ;
- Service cycle under observance of technology requirements is 5-6 years;
- Capability to regenerate; endures 3-4 regenerations without loss of activity;
- Catalyst lifetime is 10-12 years.



CHARACTERISTICS OF AOK-72-55

Parameter	Standard
Appearance - Geometry - Color	 Cylinders Light-grey
Average diameter, mm	2-3
Bulk density,g/cm³	1.1-1.4
Strength ratio, N/mm	>12
Platinum content, wt.%	0.22-0.30
Catalyst performance (%, min): Activity: - mass fraction of iC_5 in total C_6H_{14} fraction of catalyzate - Mass fraction of 2,2-dimethylbutane in total C_6H_{14} fraction of catalyzate Selectivity: mass fraction of C5+	 70 26 98

MAIN PROCESS PARAMETERS OF LOW TEMPERATURE ISOMERIZATION OF LIGHT NAPHTHA FOR EURO 5 MOTOR GASOLINE PRODUCTION

Parameter	Standard
Feed space velocity, h^{-1}	0.5-3.0
Inlet pressure (reactors), kgf/cm²	28-32
Inlet temperature (reactors), °C	130-170
Temperature difference(reactors), °C	10-25
Recycle compressor (YES/NO)	YES
Molar ratio H_2/feedstock	2.5-3/1
Circulation rate of HCG/feedstock, nm³/nm³h	450-500
Chemical demand of H_2, wt.%	0.15-0.35
Regeneration of catalyst without discharge (YES/NO)	AA
Yield of isomerate per feedstock, wt.%	97-99
Isomerate RON "once-through", points	82-84
Isomerate"full recycle" RON, points	90-92