COMMERCIAL APPLICATION OF THERMOCATALYTIC TREATMENT PROCESS

Process	Composition, concentration, capacity	Catalyst type and loading
Regeneration of catalyst for isoprene synthesis in isoprene rubber production	Formaldehyde, CO 0.18-3.72g/m³ Water 60-80 vol.% 25.0-30.0 thous.ncm/h	ICT-12-8 (17m³)
Maleic anhydride production	CO, benzene 1.74-2.0 vol.% 50 thous.ncm/h	ICT-12-40 (5m³)
Exhaust gases of formaldehyde production	CO, methanol, Formaldehyde 1.3-1.6vol.% 1.2-1.5thous.ncm/h	ICT-12-6 (0.13m³)

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OUR ENVIRONMENTAL SOLUTIONS

THERMOCATALYTIC TREATMENT

THERMOCATALYTIC TREATMENT (STEADY-STATE CONDITIONS)

Characteristics:
- Removal of organic compounds and CO including multicomponent mixtures from industrial emissions
- Gas toxic content – 3-12 g/m³
- Temperature range of gases for treatment: 200-400°C
- Simple design

LEGEND:

1. Catalyst
2. Heat exchanger
3. Heater
4. Supply fan
5. Valves

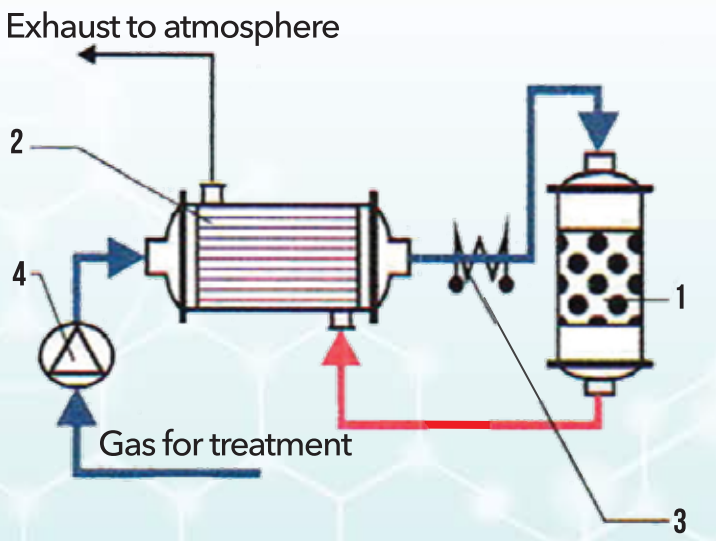

FIG.1. BLOCK DIAGRAM OF UNIT WITH EXTERNAL HEAT EXCHANGER AND AXIAL GAS FLOW

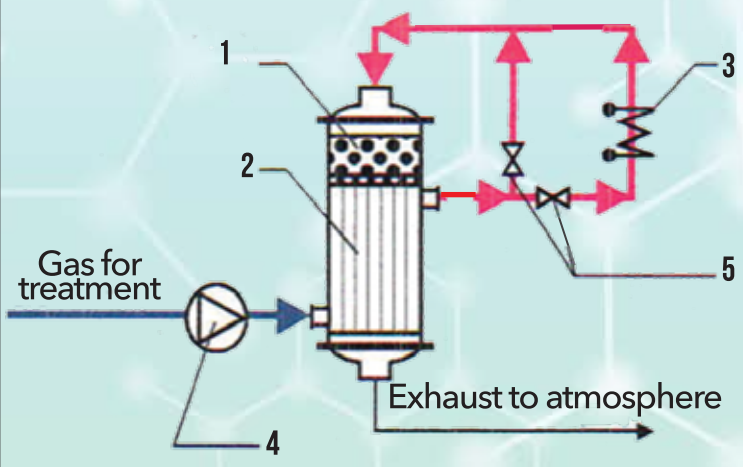

FIG.2. BLOCK DIAGRAM WITH INTEGRATED HEAT EXCHANGER AND AXIAL GAS FLOW

DESCRIPTION OF BLOCK DIAGRAMS

The exhaust gases are fed for treatment to recuperative heat exchanger (2) by supply fan (4). Where required, the gas for treatment is additionally preheated by heater (3) and passes through the fixed-bed reactor (1), (Fig.1). The heat of the treated gases can be used for heating of feed gases in the recuperative heat exchanger (2). The treated gases are discharged to the atmosphere. During adiabatic heating of exhaust gases over 120-150°C the heater (3) is used only for startup heating of the catalyst bed. After the catalyst bed is heated the heater (3) is shut off and is not used subsequently. Various versions of catalytic reactor design are available.The catalyst bed is placed into a tubular basket with radial gas flow (Fig.2) for reducing hydraulic resistance.