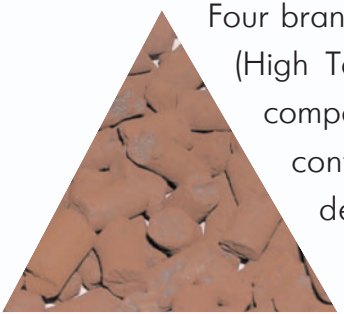
1.5. HIGH TEMPERATURE CO CONVERSION



Four brands of catalysts are designed for high temperature CO steam conversion (High Temperature Shift), they differ in shape, size of granules and chemical composition. Along with conventional **STK-1**, promoted **STK-SF**, copper-containing Fe-Cr **STK-SMT** and **STK-SMF** are offered, they do not need desulphurization. Catalysts have high activity due to promotion by copper, can operate at low temperatures, low steam:gas ratio, decreased catalysts loads. The choice of catalyst brand depends on peculiar properties of the technological chart.

	STK brands			
	STK-SMT	**STK-SMF**	**STK-1**	**STK-SF**
Appearance	Taupe cylindrical tablets		Brown extrudates	
Chemical composition, %				
Fe_2O_3	85	88	92	88
Cr_2O_3	8	8	8	8
CuO	2	2	—	—
promoters	—	—	—	4
Bulk density, kg/dm³	1.2	1.3	1.3	1.3
Size, mm	9 x 6 or 6 x 5		Diameter 5 or 7	
Mechanical side crush strength, N	300 for (9x6) mm 200 for (6x5) mm	200 for d=5 mm 300 for d=7 mm	200 for d=5 mm 300 for d=7 mm	200 for d=5 mm 300 for d=7 mm

Operating characteristics: pressure up to 4 MPa, temperature 315-500°C, space velocity of dry gas up to 4,000h^{-1}, steam:gas ratio 0.4-0.8. STK and STK-SMF, which have high activity are designed for operation in ammonia plants at decreased temperatures at reactor inlet (315-325 °C). STK-SF is used at inlet temperature 325-340°C.