substance: Ti_nO_{2n-1} ($n \geq 3$)
property: magnetic properties

susceptibility: Figs. 1 (Ti_nO_{2n-1}), 2 (Ti_5O_9) [66K, 69M, 72D, 65V, 75H, 77M]. Noteworthy is the 30 K hysteresis in Ti_3O_5, T_{tr} = 462 K↑, 432 K↓. Transitions in Ti_4O_7, Ti_5O_9 and Ti_6O_{11} were observed at 150 K, 130 K and 122 K, respectively, with no hysteresis [75H].
Above the transition temperatures, the susceptibilities of the flux-grown (not oriented) single crystals were found to obey $\chi_m = C_m/(T+\Theta_p) + \alpha$, where χ_m is the susceptibility per mol Ti atoms.

Curie-Weiss parameters

α	$246.5 \cdot 10^{-6}$ cm^3 mol^{-1}	Ti_3O_5	p_{eff} [μ_B] = 2.858 $C_m^{1/2}$ (the numerical factor is of the dimension (K cm^3 mol^{-1})$^{-1/2}$ in CGS units); C_m: molar Curie constant; Θ_p, paramagnetic Curie temperature. Ti_3O_5 shows only T.I.P. above T_{tr} (426 K). Temperature range for measurements T_{tr}...500 K.	72D
C_m	0.01270 K cm^3 mol^{-1}	Ti_4O_7		
Θ_p	28.84 K			
p_{eff}	0.319 μ_B			
α	$148.4 \cdot 10^{-6}$ cm^3 mol^{-1}			
C_m	0.00756 K cm^3 mol^{-1}	Ti_5O_9	[77M] reports only temperature independent paramagnetism above 138 K	
Θ_p	– 46.86 K			
p_{eff}	0.245 μ_B			
α	$184.1 \cdot 10^{-6}$ cm^3 mol^{-1}			
C_m	0.02900 K cm^3 mol^{-1}	Ti_6O_{11}		
Θ_p	18.34 K			
p_{eff}	0.481 μ_B			
α	$120.1 \cdot 10^{-6}$ cm^3 mol^{-1}			
C_m	0.03058 K cm^{3}mol^{-1}	Ti_8O_{15}		
Θ_p	55.22 K			
p_{eff}	0.494 μ_B			
α	$77.0 \cdot 10^{-6}$ cm^3 mol^{-1}			
C_m	0.06809 K cm^3 mol^{-1}	$Ti_{10}O_{19}$		
Θ_p	210.10 K			
p_{eff}	0.738 μ_B			
α	$41.6 \cdot 10^{-6}$ cm^3 mol^{-1}			

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Fig. 1.

Ti_nO_{2n-1}. Magnetic susceptibility per mol Ti ions vs. temperature for various microcrystalline samples; χ in CGS-emu [72P].

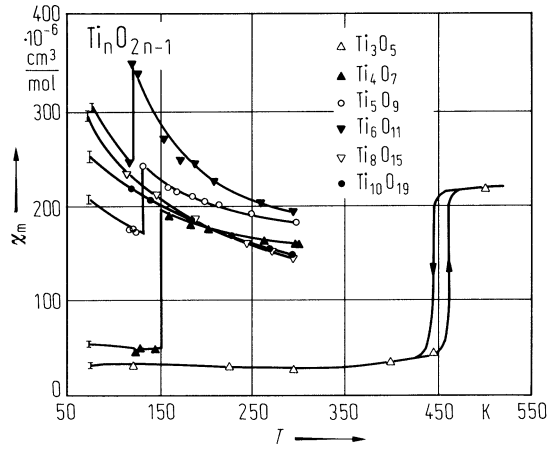

Fig. 2.

Ti_5O_9. Molar magnetic susceptibility vs. temperature, single crystal sample. χ_m in CGS-emu [77M].