**substance: $VO_2$**
**property: magnetic properties**

**susceptibility**

For pure $VO_2$, see Fig. 1; for $VO_2$ doped with Ga, Al, Fe, Cr, Ti, Nb, W, Mo, Re see Figs. 2...10.
In the semiconducting phase, electrons are paired and no magnetic effects are found. However, the material is borderline and the Mössbauer spectra of $^{119}Sn$ doped in $VO_2$ shows hyperfine splitting, which the authors attribute to regions of antiferromagnetically coupled V located around the impurity atom [74F].

## References:


72H Horlin, T., Niklewski, T., Nygren, M.: Mater. Res. Bull. 7 (1972) 1515.

72P Pouget, J. P., Lederer, P., Schreiber, D. S., Launois, H., Wohlleben, D., Casalot, A., Villeneuve, G.: J. Phys. Chem. Solids 33 (1972) 1961.

73H Horlin, T., Niklewski, T., Nygren, M.: Mater. Res. Bull. 8 (1973) 179.

74F Fabritchinyi, P. B., Bayard, M., Pouchard, M., Hagenmuller, P.: Solid State Commun. 14 (1974) 603.

76B1 Brückner, W., Gerlach, U., Moldenhauer, W., Brückner, H. P., Thuss, B., Oppermann, H., Wolf, E., Storbeck, I.: J. Phys. (Paris) Colloq. 37 (1976) C4-63.

76B2 Brückner, W., Gerlach, U., Moldenhauer, W., Brückner, H. P., Mattern, N., Oppermann, H., Wolf, E.: Phys. Status Solidi (a) 35 (1976) 93.

76H Hörlin, T., Niklewski, T., Nygren, M.: Acta Chem. Scand. A30 (1976) 619.

77S Savberg, Ö., Nygren, M.: Phys. Status Solidi (a) 43 (1977) 645.

77V Villeneuve, G., Drillon, M., Hagenmuller, P., Nygren, M., Pouget, J. P., Carmona, F., Delhaes, P.: J. Phys. C10 (1977) 3621.

**Fig. 1.**

$VO_2$. Magnetic susceptibility vs. temperature for pure polycrystalline material. The sharp rise at low temperature is thought to be due to magnetic impurities [72P]. $\chi$ in CGS-emu.

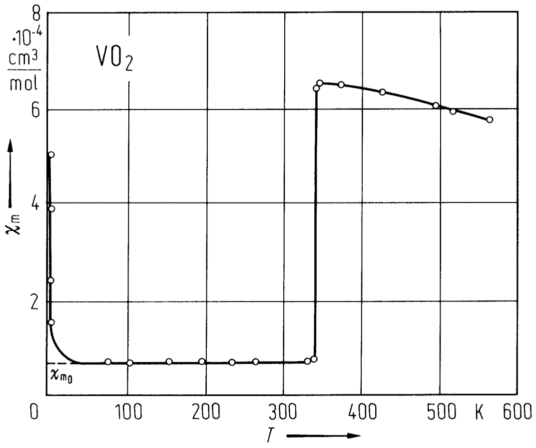

**Fig. 2.**

$Ga_xV_{1-x}O_2$. Susceptibility vs. temperature for x = 0 (*1*), 0.0039 (*2*) and 0.0099 (*3*) [76B2]. $\chi_g$ in CGS- emu. Polycrystalline samples.

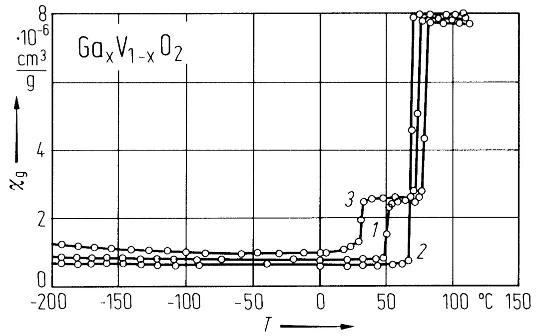

**Fig. 3.**

$Al_{0.03}V_{0.97}O_{2+y}$. Magnetic susceptibility vs. temperature for polycrystalline samples of different composition [77V]. $\chi_m$ in CGS-emu.

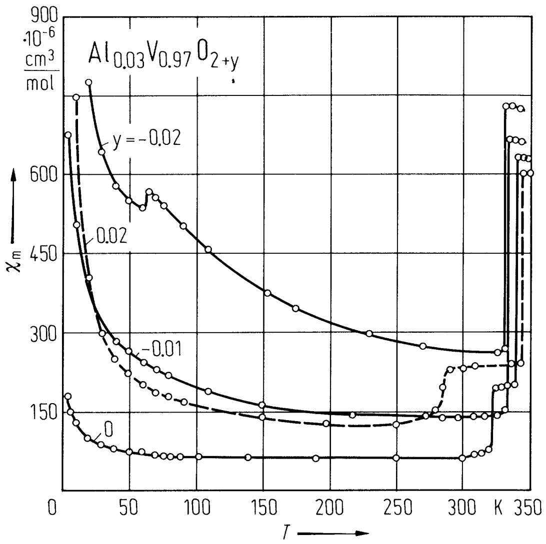

**Fig. 4.**

$Fe_xV_{1-x}O_2$. Magnetic susceptibility vs. temperature for polycrystalline samples of different composition [76B1]. $\chi_g$ in CGS-emu.

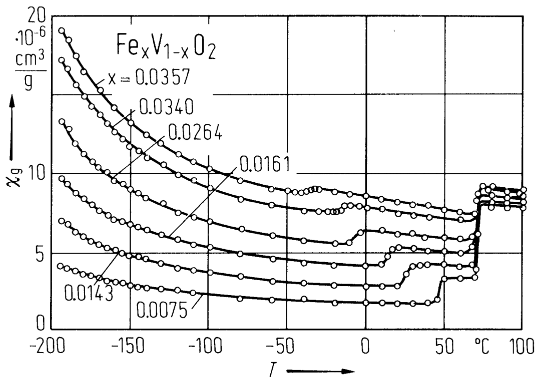

**Fig. 5.**

$Cr_xV_{1-x}O_2$. Magnetic susceptibility vs. temperature for polycrystalline samples of different composition [77V]. $\chi_m$ in CGS-emu.

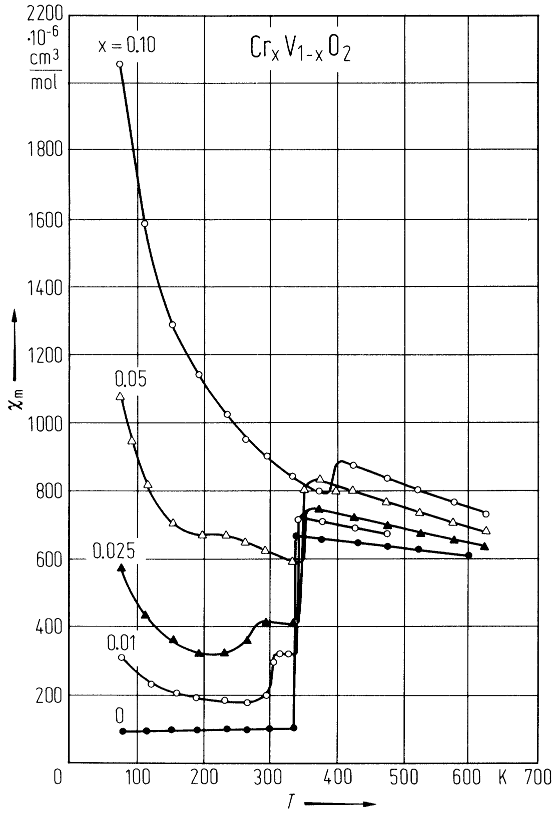

**Fig. 6.**

(a) $Ti_{0.04}V_{0.96}O_2$. Magnetic susceptibility vs. temperature. (b) The deviation $\delta\chi_m$ of the susceptibility of $Ti_{0.04}V_{0.96}O_2$ and $Ti_{0.06}V_{0.94}O_2$ vs. $T$ from the functional form $C_{obs}/T + \chi_0$ near the $M_1 \rightarrow M_2$ transition [76H]. $\chi_m$ in CGS-emu. Polycrystalline samples. $\chi_0$ is the $T$-independent contribution of $\chi_m$.

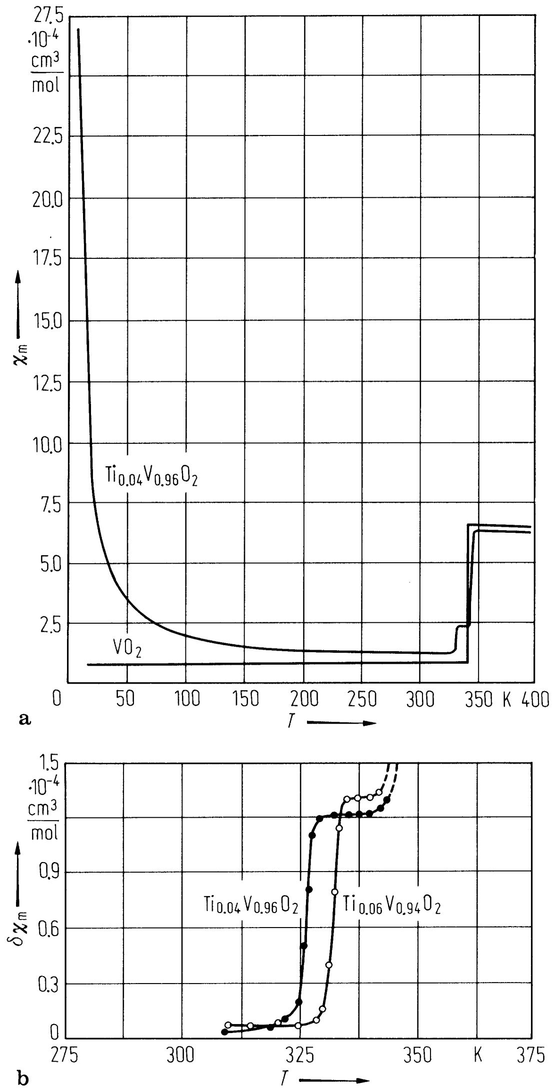

**Fig. 7.**

$Nb_xV_{1-x}O_2$. Magnetic susceptibility vs. temperature for polycrystalline samples of different composition [72P]. $\chi_m$ in CGS-emu.

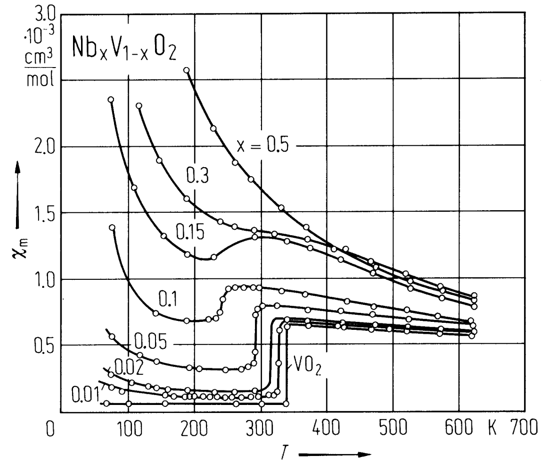

**Fig. 8.**

$W_xV_{1-x}O_2$. Magnetic susceptibility vs. reciprocal temperature for polycrystalline samples of different composition [72H]. $\chi_m$ in CGS-emu.

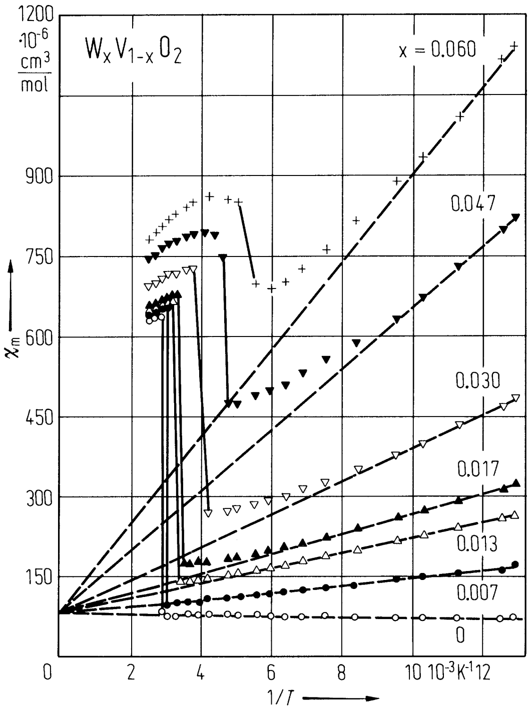

**Fig. 9.**

$Mo_xV_{1-x}O_2$. Magnetic susceptibility vs. reciprocal temperature for polycrystalline samples of different composition [73H]. $\chi_m$ in CGS-emu.

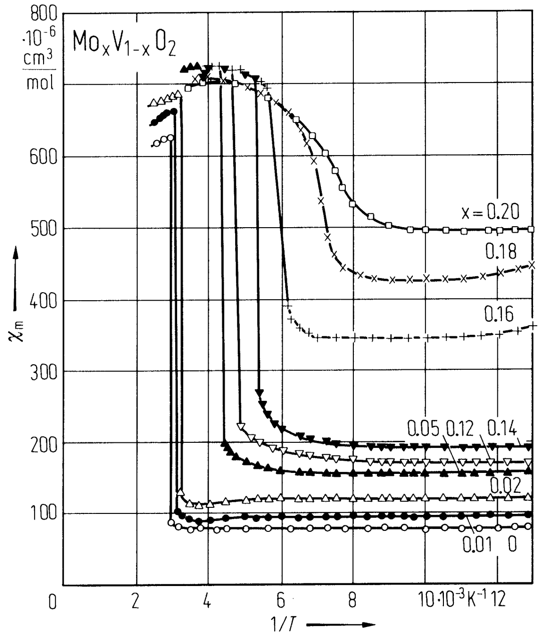

**Fig. 10.**

$Re_xV_{1-x}O_2$ Magnetic susceptibility vs. reciprocal temperature for polycrystalline samples of different composition [77S]. $\chi_m$ in CGS-emu.