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Superconductivity in Yttrium Metal at 17 K[1] JAMES J. HAMLIN, Department of Physics, Washington University, St. Louis, MO, VLADIMIR G. TISSEN, Institute of Solid State Physics, Chernogolovka, Russia, JAMES S. SCHILLING, Department of Physics, Washington University, St. Louis, MO — Many of the known elemental superconductors only become superconducting if high pressure is applied. In 1970 J. Wittig [1] discovered superconductivity in yttrium metal at 1.2 K under 11 GPa pressure, T_c increasing to 2.7 K at 16 GPa. Using a diamond-anvil cell with dense helium pressure medium, we have extended this pressure range to 89 GPa. We find that T_c for yttrium metal reaches values as high as 17 K (ac susceptibility midpoint), one of the highest transition temperatures ever observed for an elemental superconductor. [1] J. Wittig, Phys. Rev. Lett. 24, 812 (1970).

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