

[PROBLEMS] To provide a polypropylene fiber (PP fiber) excellent in strength, heat tolerance and water-absorbing property; a method of producing the same; and a hydraulic composition, a rope, a sheet-type fiber construct and a composite material with an organic polymer each using the above PP fiber. [MEANS FOR SOLVING PROBLEMS] A PP fiber having a fiber strength of 7 cN/dtex or more and exhibiting either or both of the following characteristics: (i) a single shape exhibiting a maximum heat absorption peak shape having a half-value width of 10°C or lower and DSC characteristics exhibiting a melting enthalpy change ( $\Delta H$ ) of 125 J/g, and (ii) peaks-and-valleys characteristics having a single filament fineness of 0,1 to 3 dtex wherein peaks with a large diameter and non-peaks with a small diameter are alternately located along the fiber axis on the surface and the average interval of  $\Delta$  the peaks and valleys is from 6,5 to 20  $\mu\text{m}$  and the average height thereof is from 0,35 to 1  $\mu\text{m}$ ; a method of producing the PP fiber as described above which comprises pre-stretching 3- to 10-fold an unstretched PP fiber having an IPF of 94% or more at 120 to 150°C, and then after-stretching it 1,2- to 3,0-fold at 170 to 190°C at a deformation speed of 1,5- to 15-fold/min under a stretch tension of 1,0 to 2,5 cN/dtex; and a hydraulic composition, a rope, a sheet-type fiber construct and a composite material with an organic polymer each using the above PP fiber.