substance: Ti_nO_{2n-1} ($n \geq 3$)
property: crystal structure of Ti_6O_{11}, Ti_7O_{13}, Ti_8O_{15}, Ti_9O_{17}

lattice parameters
(RT values)

a	5.566(2) Å	Ti_6O_{11}	space group $A\bar{1}$	63A,
b	7.144(2) Å			71T,
c	24.066(7) Å			82L
α	98.473(4)°			
β	120.802(8)°			
γ	108.520(6)°			
a	5.547(2) Å	Ti_7O_{13}	space group $C_i^1 - P\bar{1}$	
b	7.140(3) Å			
c	15.370(7) Å			
α	98.905(6)°			
β	125.457(9)°			
γ	108.517(6)°			
a	5.534(2) Å	Ti_8O_{15}	space group $C_i^1 - A\bar{1}$	
b	7.144(2) Å			
c	37.613(12) Å			
α	97.167(3)°			
β	128.384(6)°			
γ	108.470(4)°			
a	5.527(2) Å	Ti_9O_{17}	space group $C_i^1 - P\bar{1}$	
b	7.141(3) Å			
c	22.278(8) Å			
α	97.264(4)°			
β	131.338(7)°			
γ	108.499(4)°			

Estimated atomic positions [82L] show that in these shear phases the pseudo-rutile chains deviate considerably from the rutile axis, which allows the face-sharing Ti ions to move considerably further apart and reduce electron repulsion.

References:

63A Andersson, S., Jahnberg, L.: Arkiv Kemi 21 (1963) 413.
71T Teresaki, O., Watanabe, D.: Jpn. J. Appl. Phys. 10 (1971) 292.
82L Le Page, Y., Strobel, P.: J. Solid State Chem. 43 (1982) 314.