

M20 KOH group**No. M20-i NaOD, Sodium deuteroxide**(NaOD: $M = 41.00$; NaOH: $M = 40.00$)

1a Dielectric anomaly associated with a phase transition at Θ_{IV-III} in NaOD was found and possibility of antiferroelectricity was mentioned by Bastow et al. in 1986.						86Bas
b	phase	IV ^{a)}	III	II	I	82Ble
	state	(A) ^{b)}	P			^{a)} 85Amm1
	crystal system	monoclinic	orthorhombic	monoclinic	cubic	^{b)} 86Bas
	space group	$P2_1/n - C_{2h}^5$	$Cmcm - D_{2h}^{17}$	$P2_1/m - C_{2h}^2$	$Fm3m - O_h^5$	
	Θ [K]	153	500	561		
Θ of NaOH [K]		–	514	566		
Θ_{IV-III} of NaOH was not observed down to 6 K.						86Whi
High pressure phase V was observed for NaOH.						69Pis
Space group of phase V at $p = 1.3$ GPa, $T = RT$: $Pbcm - D_{2h}^{11}$.						93Bec
Transition pressure [GPa] (D: NaOD, H: NaOH):						92Kro
T [K]		III \rightarrow V	III \rightarrow IV	IV \rightarrow V (onset, completion)	V \rightarrow III	
293	D	1			0.8	
	H	1			0.8	
250	D		0.9	3.2... 7.0	0.5	
	H		1	3.2... 5.8	0.5	
200	D		0.5	5.1...10.1		
	H		0.9	6.0...12.0		
160	D		–	6.8...12.8		
	H		0.8	7.8...14.8		
110	D		–	8.6...18.9		
	H		0.6	10.4...23.0		
$T_{melt} = 593$ K for NaOD and 592 K for NaOH.						
3a	Unit cell parameters of NaOD: $a = 3.388(1)$ Å, $b = 11.34(1)$ Å, $c = 3.418(1)$ Å, $\beta = 90.52^\circ$ in phase IV.					85Amm1
	Unit cell parameters of NaOH: $a = 5.10(2)$ Å at 579 K (phase I).					82Ble
	$a = 3.4013(4)$ Å, $b = 11.378(3)$ Å, $c = 3.3984(3)$ at 294 K (phase III),					
	$a = 3.389(1)$ Å, $b = 11.334(11)$ Å, $c = 3.383(2)$ at 147 K (phase III).					85Jac
	Pressure dependence of a , b , c of NaOH: see					93Bec
b Crystal structure: Table M20-i-001, Table M20-i-002; Fig. M20-i-001, Fig. M20-i-002. See also Fig. M20-iv-001 in No. M20-iv.						
4 Thermal expansion: see						82Ble
5a Dielectric constant: Fig. M20-i-003.						
6a	Specific heat: Fig. M20-i-004; see also					82Ble
	Transition heat ΔQ_m , transition entropy ΔS_m at Θ_{IV-III} :					86Whi
	$\Delta Q_m = 131.1(7)$ J mol ⁻¹ , $\Delta S_m = 0.864(5)$ J K ⁻¹ mol ⁻¹ .					
9a Infrared spectra: Fig. M20-i-005.						

M20 KOH group

10a Raman spectra: Fig. M20-i-006, Fig. M20-i-007, Fig. M20-i-008.

13a NMR of ^{23}Na : Fig. M20-i-009.
NMR of proton in NaOH: see

85Amm2

14b Change in line profile of neutron diffraction: Fig. M20-i-010.
