$Ce_4S_3(S_{0.33}Cl_{0.67})_3O$	*hP*22	(186) $P6_3mc - c^3b^2$

$Ce_4OS_4Cl_2$ [1]; Na_5SrNbP_4 [2]; $La_4NS_3Cl_3$ [3]
Structural features: OCe_4 tetrahedra in a Mg-type (h.c.p.) arrangement in a matrix of S and Cl atoms. Ordering variant of Ba_4Cl_6O, $Ce_4[S_3(Cl,S)_3]O$.

Schleid T. (1991) [1]
$Ce_4Cl_2OS_4$
a = 0.92549, c = 0.69413 nm, c/a = 0.750, V = 0.5149 nm^3, Z = 2

site	Wyck.	sym.	x	y	z	occ.	atomic environment
M1	6*c*	.*m*.	0.1324	0.8676	0.2774		non-coplanar triangle Ce_3
S2	6*c*	.*m*.	0.5302	0.4698	0.1076		non-coplanar triangle Ce_3
Ce3	6*c*	.*m*.	0.80505	0.19495	0.3858		square antiprism OCl_3S_4
O4	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.0		tetrahedron Ce_4
Ce5	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.3453		tetrahedron OS_3

M1 = 0.667Cl + 0.333S
Transformation from published data: origin shift 0 0 0.3642
Experimental: single crystal, diffractometer, X-rays, wR = 0.019

Remarks: A fully ordered structure is reported for $La_4NS_3Cl_3$.

References: [1] Schleid T. (1991), Eur. J. Solid State Inorg. Chem. 28, 737-748. [2] Lin J., Hönle W., Von Schnering H.G. (1992), J. Alloys Compd. 183, 403-412. [3] Lissner F., Schleid T. (1994), Z. Anorg. Allg. Chem. 620, 1998-2002.