

1.3.3.5 Ternary actinide pnictides and chalcogenides containing lanthanide atoms (Ln)

1.3.3.5.1 Survey

Compound	State	Crystal structure, magnetic and related properties	Figs.	Tab.	Ref.
An_{0.5}Ln_{0.5}Y₂					
U _{0.5} Y _{0.5} Se ₂		Lattice parameters Inverse magnetic susceptibility χ_g^{-1} vs. T	<u>1</u>	A	82SKG2 84NCCC
U _{0.5} Ln _{0.5} Se ₂ Ln = Tb, Dy, Ho, Er, Tm, Yb		Lattice parameters Inverse magnetic susceptibility χ_g^{-1} vs. T	<u>2</u>	A	82SKG2 84NCCC
U _{0.5} Dy _{0.5} Se ₂	sc	Lattice parameters		A	81PLSK1 , 81SKGK
U _{0.5} Ln _{0.5} Te ₂ Ln = Tb, Dy, Ho, Er, Tm		Lattice parameters		A	85SKG3
U _{0.5} Dy _{0.5} Te ₂	sc	Lattice parameters		A	85SKG1 , 85SKG4
An_{0.5}Ln_{0.5}Y₃					
U _{0.5} Ln _{0.5} Te _{2.9} Ln = Tb, Dy, Ho, Er, Tm, Yb, Lu, Y		Lattice parameters		A	85SKGK
U _{0.5} Tb _{0.5} Te ₃		Inverse magnetic susceptibility χ_g^{-1} vs. T Magnetisation M vs. T (5...20 K) Hysteresis loop at 4.2 K	<u>3(a)</u> <u>3(b)</u> <u>3(c)</u>		85SKGK 85SKGK 85SKGK
U _{0.5} Dy _{0.5} Te ₃	sc	Lattice parameters		A	85SKG1
An_{2/3}Ln_{1/3}X₂					
U _{2/3} Ln _{1/3} Sb ₂ Ln = Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Ho, Er, Tm		Lattice parameters	<u>4</u>	A	01SJ
U _{2/3} Gd _{1/3} Sb ₂	sc	Crystal structure refinement	<u>5</u>	A	01SJ
AnLn₂Y₅					
ThLa ₂ S ₅		Lattice parameters		A	75JD , 80NP
ThCe ₂ S ₅		Lattice parameters Inverse magnetic susceptibility χ_m^{-1} vs. T	<u>6</u>	A B	80NP 80NP
ThPr ₂ S ₅		Lattice parameters Inverse magnetic susceptibility χ_m^{-1} vs. T	<u>7</u>	A B	80NP 80NP
ThNd ₂ S ₅		Lattice parameters Inverse magnetic susceptibility χ_m^{-1} vs. T	<u>8</u>	A B	80NP 80NP
ThSm ₂ S ₅		Lattice parameters Inverse magnetic susceptibility χ_m^{-1} vs. T	<u>9</u>	A B	80NP 80NP
ThULa ₅		Lattice parameters Inverse magnetic susceptibility χ_m^{-1} vs. T	<u>10</u>	A B	80NP 80NP

Compound	State	Crystal structure, magnetic and related properties	Figs.	Tabs.	Ref.
ThUCeS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	6	B	80NP
ThUPrS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	7	B	80NP
ThUNdS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	8	B	80NP
ThUSmS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	9	B	80NP
ULa ₂ S ₅		Lattice parameters		A	75TGFR , 80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	10	B	80NP
UCe ₂ S ₅		Lattice parameters		A	75TGFR , 80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	6	B	80NP
UPr ₂ S ₅		Lattice parameters		A	75TGFR , 80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	7	B	80NP , 84NCCC
UPr ₂ S ₅ – US ₂		Crystallochemical study of solid solutions			79SKG
UNd ₂ S ₅		Lattice parameters		A	75TGFR , 80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	8	B	80NP
USm ₂ S ₅	sc	Crystal structure refinement		A	75TGFR
		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	9	B	80NP
UGd ₂ S ₅		Lattice parameters		A	75TGFR
ThLa ₂ Se ₅		Lattice parameters		A	75JD
ULn ₂ Se ₅	sc	Lattice parameters		A	84SKG
Ln = La, Ce, Pr, Nd, Sm, Gd					
ULn ₂ Te ₅		Inverse magnetic susceptibility χ_g^{-1} vs. T	11		82CNPS , 84NCCC
Ln = La, Pr, Nd, Gd					
(An_{0.5}Ln_{0.5})₃X₇					
(U _{0.5} Ln _{0.5}) ₃ - Sb ₇		Lattice parameters	4	A	01SJ
Ln = Y, Gd, Tb, Dy, Ho					
(U _{0.5} Ho _{0.5}) ₃ - Sb ₇	sc	Crystal structure refinement	12	A	01SJ
An₂LnY₅					
U ₂ LaS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	10	B	80NP
U ₂ LaS ₅ – US ₂		Lattice parameters vs. composition of solid solutions			75TGFR

Compound	State	Crystal structure, magnetic and related properties	Figs.	Tab.	Ref.
U ₂ LaS ₅ – U ₃ S ₅		Lattice parameters vs. composition of solid solutions			75TGFR
U ₂ CeS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	6	B	80NP
U ₂ PrS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	7	B	80NP
U ₂ NdS ₅		Lattice parameters		A	80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	8	B	80NP
U ₂ SmS ₅		Lattice parameters		A	75TGFR , 80NP
		Inverse magnetic susceptibility χ_m^{-1} vs. T	9	B	80NP
U ₂ EuS ₅		Lattice parameters		A	72BPP , 75TGFR
U ₂ SmSe ₅		Lattice parameters		A	84SKG
U ₂ EuSe ₅		Lattice parameters		A	72BPP , 84SKG
U ₂ LnTe ₅ Ln = La, Pr, Nd, Sm, Gd		Lattice parameters		A	79KSG
An₅Ln₄Y₁₆					
Th ₅ Ln ₄ S ₁₆ Ln = Tb, Dy, Ho, Er, Tm, Yb, Lu, Y	poly	Lattice parameters		A	74TG
U ₅ Tb ₄ S ₁₆	sc	Crystal structure refinement		A	74TG
		Inverse magnetic susceptibility χ_g^{-1} vs. T up to 900 K	13(a)		82CNPS , 84NCCC
		Θ vs. de Gennes function $G = (g-1)^2 J(J+1)$	13(b)		
U ₅ Tb _{4-x} Y _x S ₁₆ x = 0, 1, 2, 3, 4		Inverse magnetic susceptibility χ_g^{-1} vs. T	14	C	84NCKS1
U ₅ Dy ₄ S ₁₆		Lattice parameters		A	74TG
		Inverse magnetic susceptibility χ_g^{-1} vs. T up to 900 K	13(a)		82CNPS , 84NCCC
		Θ vs. de Gennes function $G = (g-1)^2 J(J+1)$	13(b)		
U ₅ Ho ₄ S ₁₆		Lattice parameters		A	74TG
		Inverse magnetic susceptibility χ_g^{-1} vs. T up to 900 K	13(a)		82CNPS , 84NCCC
		Θ vs. de Gennes function $G = (g-1)^2 J(J+1)$	13(b)		
U ₅ Er ₄ S ₁₆		Lattice parameters		A	74TG
		Inverse magnetic susceptibility χ_g^{-1} vs. T up to 900 K	13(a)		82CNPS , 84NCCC
		Θ vs. de Gennes function $G = (g-1)^2 J(J+1)$	13(b)		
U ₅ Ln ₄ S ₁₆ Ln = Tm, Yb, Lu	poly	Lattice parameters		A	74TG
U ₅ Y ₄ S ₁₆		Lattice parameters		A	74TG
		Inverse magnetic susceptibility χ_g^{-1} vs. T up to 800 K	15	C	82CNPS , 84NCCC , 84NCKS1

Compound	State	Crystal structure, magnetic and related properties	Figs.	Tab.	Ref.
U ₃ Ln ₄ Se ₁₆ Ln = Tb, Dy, Ho, Er, Y	sc	Lattice parameters		A	82SKG1
U ₃ Dy ₄ Se ₁₆	sc	Lattice parameters		A	81PLSK3 , 81SKGK
		Inverse magnetic susceptibility χ_g^{-1} vs. T	16		81PLSK3 , 82CNPS
others					
U _{0.87} Yb _{2.0} Se ₄	sc	Lattice parameters		A	82SKG4
ULnTe ₃ Ln = Tb, Dy, Ho		Lattice parameters		A	85SKG2
ULnSe ₄ Ln = La, Ce, Pr, Nd, Sm, Gd	sc	Lattice parameters		A	83SKG
U _{1.5} Ln _{1.5} Te ₅ Ln = Tb, Dy, Ho, Er		Lattice parameters		A	85SKG2
U _{1.5} Dy _{1.5} Te ₅	sc	Lattice parameters		A	85SKG1 , 85SKG4
U ₂ Ln ₂ Se ₇ Ln = Tb, Dy, Ho, Er, Tm, Y		Lattice parameters		A	82SKG3
U ₂ Tb ₂ Se ₇	sc	Lattice parameters		A	81PLSK2
U ₂ La _{2n-2} O _{2n} S _{n+1} 2 ≤ n ≤ 6		Lattice parameters		A	87VCEG
U _{1-x} Lu _x LiS ₂ 0.2 < x < 0.8		Crystal structure refinement for x = 0.5		A	98SMFY
(UO) ₂ ErS ₃	sc	Crystal structure	17	A	86JGV
(UOS) ₂ ErS	sc	Crystal structure	18		90JDL
(UOS) ₄ LuS	sc	Crystal structure	18	A	90JDL