

^{31}P $Z = 15$ $N = 16$ adopted link ENSDF link

Based on ENSDF from Oct 2022, and mass evaluation from 2020

BE = 262.916 (0.000) MeV

	Energy T	J+	J-	J-other	T1/2
31P 1	0.000	1/2+			1 STABLE
31P 2	1.266	3/2+			2 510 FS 24
31P 3	2.234	5/2+			3 256 FS 17
31P 4	3.134	1/2+			4 7.1 FS 4
31P 5	3.295	5/2+			5 85 FS 17
31P 6	3.415	7/2+			6 208 FS 56
31P 7	3.506	3/2+			7 8.8 FS +16-12
31P 8	4.191	5/2+			8 4.9 FS 21
31P 9	4.260	3/2+			9 10.4 FS 42
31P 10			4.431	7/2-	10 0.424 PS 31
31P 11	4.593	3/2+			11 13 FS 4
31P 12	4.634	7/2+			12 70 FS 14
31P 13	4.785	5/2+			13 6.9 FS 28
31P 14				5.015 (3/2+)	14 40 FS 12
31P 15			5.015	3/2-	15 7.6 FS 51
31P 16	5.115	5/2+			16 10.4 FS 44
31P 17	5.257	1/2+			17 10 FS LE
31P 18	5.343	9/2+			18 38 FS 11
31P 19				5.530 (5/2)+	19 11 FS 5
31P 20	5.559	3/2+			20 17 FS LT
31P 21				5.672 5/2	21 25 FS 6
31P 22	5.773	7/2+			22 22 FS 9
31P 23	5.892	9/2+			23 24 FS 8
31P 24				5.988 (3/2)+	24
31P 25	6.046	7/2+			25 22 FS 12
31P 26	6.079	9/2+			26 22 FS 12
31P 27				6.158 (1/2,3/2,5/2)	27
31P 28				6.233 (7/2)+	28
31P 29	6.337	1/2+			29
31P 30				6.381 3/2 (3/2)+	30 7 FS LT
31P 31				6.399 7/2(-)	31 27 FS 12
31P 32	6.453	11/2+			32 23 FS 12
31P 33	6.461	5/2+			33
31P 34			6.497	3/2-	34
31P 35			6.501	9/2-	35 38 FS 14
31P 36				6.595 (5/2)-	36
31P 37			6.610	3/2-	37
31P 38				6.668 (11/2-)	38

31P	39			6.796	9/2-			39	139 FS	41
31P	40			6.824	11/2-			40	62 FS	26

31P	41					6.828	(7/2-,9/2+)	41	83 FS	35
31P	42					6.842	(5/2)-	42		
31P	43					6.910	(3/2)-	43		
31P	44	6.931	5/2+					44	28 FS	LT
31P	45					7.069	5/2-,7/2-	45		
31P	46					7.074	(1/2,3/2)+	46		
31P	47					7.080	(3/2)-	47		
31P	48					7.084	(3/2+,5/2+)	48		
31P	49	7.118	9/2+					49	17 FS	LE
31P	50	7.141	1/2+					50		

31P	51					7.160	3/2+,5/2+	51		
31P	52					7.214	1/2-,3/2-	52		
S-p	=	7.297	(0.000)	-----						
31P	53					7.314	(1/2,3/2)+	53		
31P	54					7.316	5/2-,7/2-	54		
31P	55					7.347	(3/2)-	55		
31P	56	7.442	11/2+					56	12 FS	10
31P	57					7.446	(3/2+,5/2,7/2-)	57		
31P	58					7.466	(7/2)-	58	21 FS	LE
31P	59					7.572		59		
31P	60					7.687		60		

31P	61					7.691	5/2-,7/2-	61		
31P	62					7.717	(5/2)-	62		
31P	63					7.737	5/2-,7/2-	63		
31P	64			7.781	3/2-			64		
31P	65					7.825		65		
31P	66					7.851	(1/2-,3/2)	66		
31P	67					7.860	11/2(-)	67		
31P	68			7.898	1/2-			68	64 EV	9
31P	69					7.911	5/2-,7/2-	69		
31P	70					7.945	3/2+,5/2+	70		

31P	71					7.976	3/2+,5/2+	71		
31P	72					7.994	(5/2)-	72		
31P	73	8.031	5/2+					73		
31P	74			8.048	3/2-			74		
31P	75					8.077	11/2(-)	75		
31P	76	8.104	5/2+					76		
31P	77	8.208	3/2+					77	2.6 EV	2
31P	78					8.224	7/2(-)	78		
31P	79			8.243	5/2-			79		
31P	80					8.248	(3/2)-	80		

31P	81					8.264	3/2	81		
31P	82					8.344	(11/2+)	82	27 FS	7

31P 83						8.345	(7/2-,9/2+)	83	27 FS	7
31P 84				8.356	5/2-			84		
31P 85						8.414	11/2(-)	85		
31P 86				8.434	7/2-			86		
31P 87		8.461	5/2+					87	2 EV	1
31P 88						8.470	5/2	88		
31P 89				8.544	1/2-			89	54 EV	10
31P 90		8.552	1/2+					90	0.31 KEV	4

31P 91				8.555	3/2-			91	210 EV	25
31P 92		8.576	5/2+					92	7 EV	5
31P 93						8.584	5/2(+)	93	50 EV	10
31P 94						8.601	(5/2+)	94		
31P 95		8.641	5/2+					95	5 EV	3
31P 96		8.649	3/2+					96		
31P 97						8.705	(13/2-)	97	159 FS	28
31P 98		8.729	3/2+					98		
31P 99		8.731	3/2+					99		
31P 100		8.738	3/2+					100	20 EV	5

31P 101						8.755		101		
31P 102		8.757	5/2+					102	3 EV	2
31P 103		8.763	1/2+					103	1.45 KEV	15
31P 104				8.840	7/2-			104	1 EV	1
31P 105		8.903	1/2+					105	92 EV	15
31P 106		8.910	5/2+					106	1 EV	1
31P 107		8.936	3/2+					107	3 EV	2
31P 108						8.986	3/2	108		
31P 109		9.009	5/2+					109	70 EV	20
31P 110				9.046	3/2-			110	9.2 KEV	9

31P 111						9.053	(5/2)+	111		
31P 112		9.067	5/2+					112	16 EV	5
31P 113				9.113	7/2-			113	1 EV	1
31P 114		9.116	5/2+					114	22 EV	7
31P 115		9.128	5/2+					115	3 EV	2
31P 116		9.131	5/2+					116	4 EV	2
31P 117						9.154	7/2(-)	117		
31P 118						9.156	3/2(+)	118		
31P 119						9.176	(13/2)-	119	83 FS	28
31P 120				9.176	3/2-			120	83 EV	15

31P 121		9.206	7/2+					121		
31P 122				9.226	1/2-			122	3.6 KEV	5
31P 123		9.241	3/2+					123	150 EV	15
31P 124						9.253	(7/2)-	124	3 EV	1
31P 125						9.256	(5/2+,7/2-)	125		
31P 126				9.291	3/2-			126	10.0 KEV	8
31P 127						9.313	(13/2+)	127		
31P 128						9.319	3/2(+)	128		

31P 129						9.358		129			
31P 130						9.361		130			

31P 131				9.362		3/2-		131	10.0 KEV	10	
31P 132		9.400		1/2+				132	0.50 KEV	8	
31P 133				9.412		7/2-		133	0.50 KEV	8	
31P 134							9.441	3/2(+)	134	180 EV	20
31P 135		9.449		5/2+				135	0.45 KEV	5	
31P 136							9.450	(13/2)-	136	35 FS	14
31P 137							9.477	(7/2-)	137		
31P 138							9.515	1/2-,3/2-	138		
31P 139		9.525		3/2+				139	22.0 KEV	22	
31P 140		9.536		5/2+				140	15 EV	10	

31P 141							9.571	3/2	141		
31P 142							9.578	7/2(-)	142	22 EV	10
31P 143				9.579		3/2-		143	20.0 KEV	20	
31P 144							9.585	(1/2+,3/2-)	144	3.7 KEV	4
31P 145							9.594	3/2	145		
31P 146							9.599	3/2(-)	146		
31P 147							9.600	(13/2+)	147		
31P 148							9.612		148		
31P 149							9.659	(3/2,5/2)+	149		
S-alpha=		9.669		(0.000)							
31P 150							9.718	(5/2,7/2)-	150	30 EV	10

31P 151							9.720		151	24.0 KEV	24
31P 152		9.757		5/2+				152	3 EV	2	
31P 153		9.760		5/2+				153	20 EV	7	
31P 154							9.765	(3/2)+	154	0.20 KEV	5
31P 155				9.765		3/2-		155	0.30 KEV	7	
31P 156				9.786		3/2-		156	50 KEV	5	
31P 157							9.800	1/2-,3/2-	157		
31P 158							9.814	(5/2,7/2)-	158	12 EV	5
31P 159				9.816		3/2-		159	150 EV	20	
31P 160				9.819		3/2-		160	4.5 KEV	5	

31P 161							9.830	-	161		
31P 162							9.841	(7/2)-	162	66 EV	15
31P 163							9.844		163	50 EV	10
31P 164							9.852	(7/2)	164		
31P 165							9.866	7/2	165		
31P 166				9.868		3/2-		166	0.35 KEV	4	
31P 167							9.908		167	0.35 KEV	4
31P 168							9.926	3/2	168		
31P 169		9.928		5/2+				169	170 EV	20	
31P 170							9.941	(3/2-,5/2+)	170		

31P 171							9.946	(5/2)-	171	125 EV	15
31P 172		9.964		1/2+				172	5.0 KEV	5	

31P	173						9.976		173	4.2 KEV	13
31P	174						9.989		174		
31P	175		9.999		1/2+				175	7.5 KEV	11

S-p = 7.297 (0.000)-----
 S-n = 12.311 (0.000)-----
 S-2p = 20.811 (0.000)-----
 S-2n = 23.630 (0.000)-----
 S-alpha= 9.669 (0.000)-----

S+p = -8.864 (0.000)
 S+n = -7.936 (0.000)
 S+2p = -11.141 (0.000)
 S+2n = -18.039 (0.001)
 S+alpha = -6.998 (0.000)

gap p = -1.567 (0.000)
 gap n = 4.375 (0.000)
 gap 2p = 9.670 (0.001)
 gap 2n = 5.591 (0.001)
 gap alpha = 2.671 (0.000)