

Data assessment on cross section data for $^{11}\text{B}(\alpha,\alpha)^{11}\text{B}$ backscattering up to 9 MeV

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Several authors have measured cross sections for alpha backscattering from 11-boron. Available publications have been sighted, and if not yet included in IBANDL the data have been digitised. In one case the data available at IBANDL (file b1aa0b.r33) [1] have turned out to be incorrect, because some mistake has been done in the conversion of the data from the centre-of-mass system to the laboratory system. A complete list can be found in table 1.

The existing cross section data for 11-boron are by far not complete, and more experimental data are necessary.

Table 1: Publications containing $^{11}\text{B}(\alpha,\alpha)^{11}\text{B}$ backscattering data.

Energy Range (MeV)	Angle in the Lab.(°)	Error	Data Presentation	Reference	IBANDL
4.0-4.9	50.0	3%	Graph	Ott/Weller [1]	<i>data unsuitable for RBS due to angle</i>
4.0-8.0	130.0	3%	Graph	Ott/Weller [1]	data digitised
4.0-4.9	140.0	3%	Graph	Ott/Weller [1]	data digitised
4.0-8.0	150.0	3%	Graph (2x)	Ott/Weller [1]	data corrected*
2.1-3.9	70.4	-	Graph	Ramirez [2]	<i>data unsuitable for RBS due to angle</i>
2.1-3.9	90.5	-	Graph	Ramirez [2]	data digitised
2.1-3.9	150.8	-	Graph	Ramirez [2]	data included
1.0-3.3	170.5	7%	Graph	McIntyre Jr. [3]	data included
1.0-5.3	165	2%	Graph & Table	Liu [4]	data digitised

* converting error in file b1aa0b.r33 (angle was $\theta=160.5^\circ$ instead of 150°)

References

- [1] W.R. Ott and H.R. Weller: Nucl. Phys. A198 (1972) 505
- [2] J.J. Ramirez et al.: Phys. Rev. C5 (1972) 17
- [3] L.C. McIntyre Jr. et al.: Nucl. Instr. Meth. B64 (1992) 457
- [4] J.R. Liu et al.: Nucl. Instr. Meth. B108 (1996) 1