^{42}Cl

Artukh et al. discovered ^{42}Cl in the 1971 paper "New isotopes ^{29,30}Mg, ^{31,32,33}Al, ^{33,34,35,36}Si, ^{35,36,37,38}P, ^{39,40}S, and ^{41,42}Cl produced in bombardment of a ^{232}Th target with 290 MeV ^{40}Ar ions" (1971Ar32). A 290 MeV ^{40}Ar beam from the Dubna 310 cm heavy-ion cyclotron bombarded a metallic ^{232}Th. Reaction products were separated and identified with a magnetic spectrometer and a surface barrier silicon telescope. "Apart from the nucleides already known, 17 new nucleides, namely: ^{29,30}Mg, ^{31,32,33}Al, ^{33,34,35,36}Si, ^{35,36,37,38}P, ^{39,40}S and ^{41,42}Cl have been reliably detected."

Adapted from reference (2012Th10)

1971Ar32 A. G. Artukh, V. V. Avdeichikov, G. F. Gridnev, V. L. Mikheev *et al.*, Nucl. Phys. A **176**, 284 (1971).

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