Cryostat AI studies

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Different glass fiber compositions with proportions of Al:

	RPUF	cryostat	cryo else	else nocryo	TOTAL
nominal	4.2E-02	8.8E-02	4.6E-02	7.6E-02	1.6E-01
noAl	3.8E-02	8.5E-02	4.7E-02	7.6E-02	1.6E-01
lowAl	1.7E-02	6.4E-02	4.7E-02	7.6E-02	1.4E-01
highAl	2.7E-02	7.4E-02	4.7E-02	7.6E-02	1.5E-01
Just_0_Al	3.9E-02	8.5E-02	4.6E-02	7.6E-02	1.6E-01

high Al: 9%

low Al: 3.4 %

no Al: 0% a glass fiber composition with no Al2O3 found online.

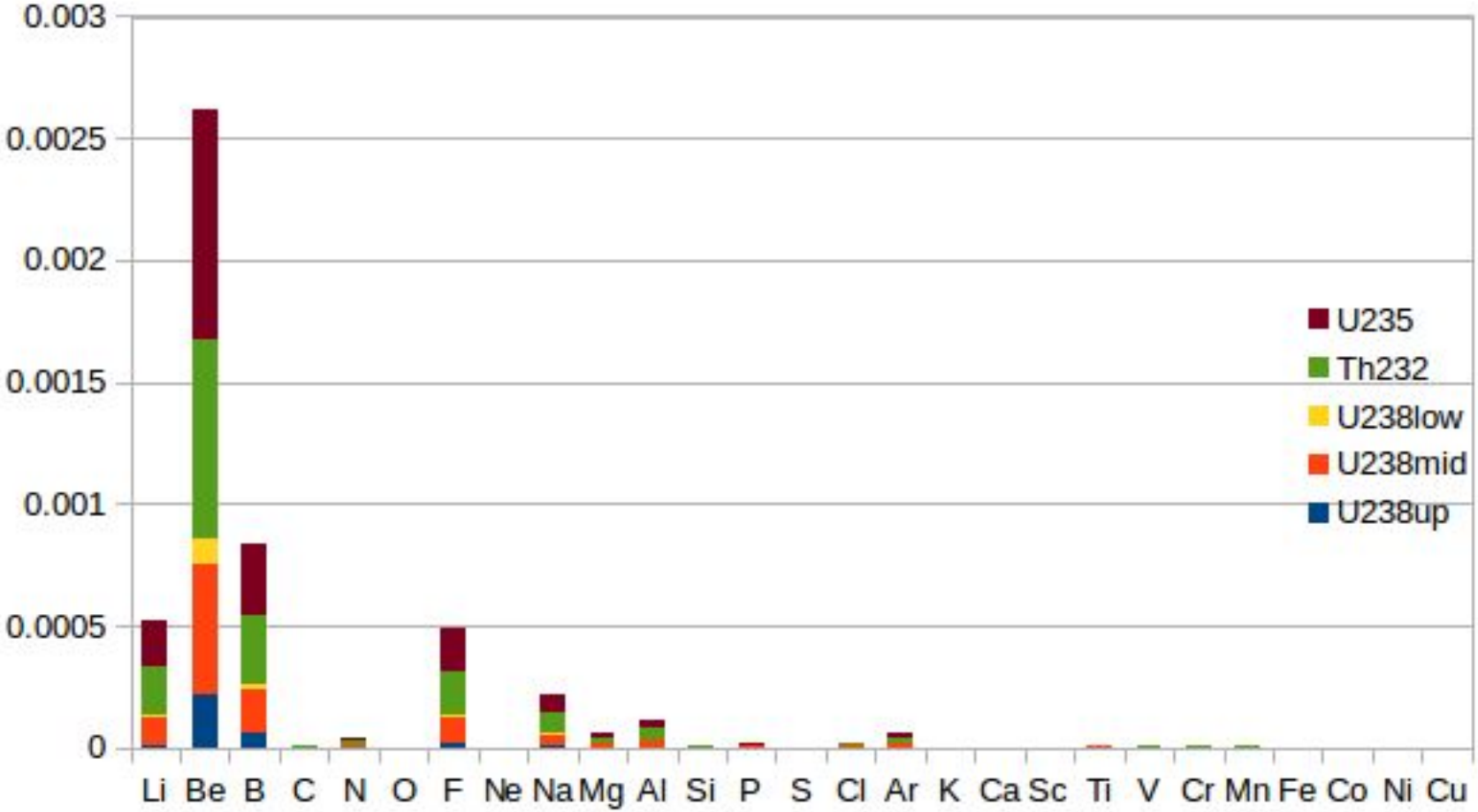
just 0 Al: 0%. Same proportions as nominal setting Al to 0

The effect is not so dramatic because the other elements (B, Mg) also have important (a,n) cross sections.

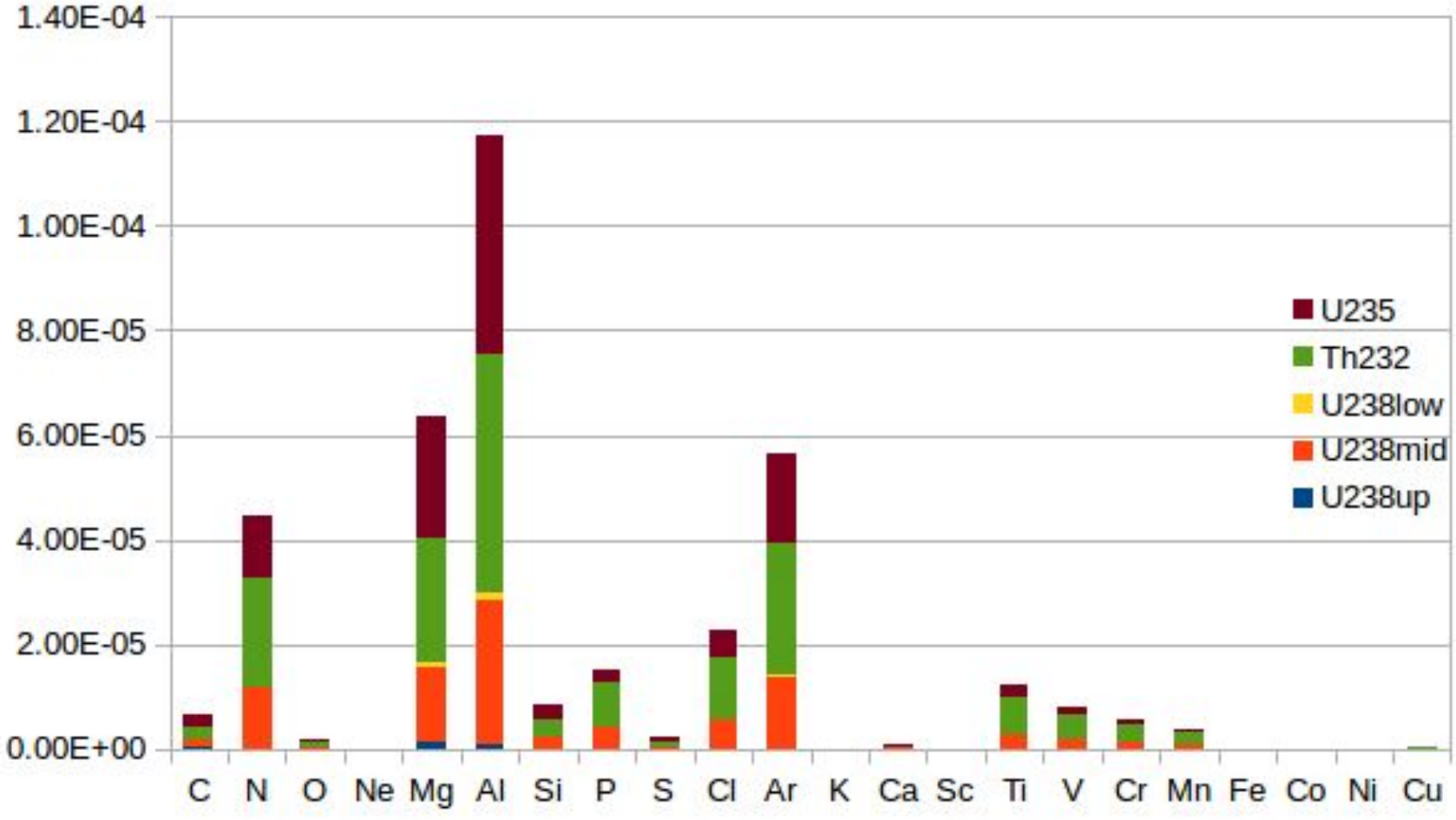
Changing the glass fiber to reduce Al content might not pay off.

Reducing the doping of glass fiber from 10% to something in the order of 5% would.

yield


0.003
0.0025
0.002
0.0015
0.001
0.0005
0
U235
Th232
U238low
U238mid
U238up
Li Be B C N O F Ne Na Mg Al Si P S Cl Ar K Ca Sc Ti V Cr Mn Fe Co Ni Cu

yield (omitting Li, Be, B, F, Na)



barriers

	in layer	total aftercuts
Rigid barrier Al	1.6e-2	1.34e-1
Rigid barrier Steel	7.6e-3	1.20e-1
Rigid barrier Acrylic	8.4e-3	1.21e-1
flexible butyl	2.4e-3	1.2e-1
flexible ffkm	1.6e-2	1.47e-1
flexible butyl steel	1.5e-3	1.19e-1
flexible ffkm steel	1.2e-2	1.40e-1
flexible butyl acrylic	1.7e-3	1.19e-1

Barriers