

Decay systems commonly used in radiometric dating

Parent & Daughter	Decay style(s)	Half-life	Useful age range	Datable material
$^{87}\text{Rb} \rightarrow ^{87}\text{Sr}$	β	47 billion years	>100 million years	Mineral
$^{232}\text{Th} \rightarrow ^{208}\text{Pb}$	α & β	14 billion years	>10 million years	Mineral
$^{238}\text{U} \rightarrow ^{206}\text{Pb}$	α & β	4.5 billion years	>10 million years	Mineral
$^{40}\text{K} \rightarrow ^{40}\text{Ar}$	e- capture	1.3 billion years	>100,000 years	Mineral
$^{235}\text{U} \rightarrow ^{206}\text{Pb}$	α & β	710 million years	>10 million years	Mineral
$^{238}\text{U} \rightarrow ^{234}\text{U} \rightarrow ^{230}\text{Th}^*$	α & β		<500,000 years	Mineral
$^{14}\text{C} \rightarrow ^{14}\text{N}$	β	5730 years	<70,000 years	Organic & CaCO_3

Note the difference in materials and the difference in useful age range.

This is "U-series" or "U-series Disequilibrium" dating, which is commonly used with the U in CaCO_3 speleothems.

