Notes:

Tritium will be tracked as a “Material” which has a recipe and a mass (in kg). Operations which can be performed on this material are:

- Create
- Extract [Qty/Comp]
- Absorb
- Transmute
- Decay

Lithium will also be treated as a material, which will have a recipe which specifies some enrichment. In the more advanced implementation, the model will transmute a certain percentage of the Li-6 into T + He and lithium enrichment can then be tracked.

Each timestep a certain amount of tritium will burn (in the basic implementation it will be 55.8kg * power/1000MW * 1/12 with a timestep of 1 month or something like that), and then the amount of tritium aded to the system will be TBR*amount burned such that the total change in tritium will be:

dT = tritium_burned*TBR - tritium_burned

It will be important to be careful how we do burnup, breeding, and decay sequentially. It is currently unclear if there is a best practice, or if it matters (maybe for really short simulations it does, but for longer ones it’s fine?)

Basic Input Mode:

Inputs:

- reactor_power
- TBR_a_sys
- reserve_inventory

Assumptions:

- Certain Lithium Enrichment percent (get from ITER or something)
- burn_rate = 55.8 kg/(yr*GW) * reactor_power
- $T_{i+1} = T_i + BR \cdot (TBR_{a,\,sys} - 1)$
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