GT New Horizons

Thorium High Temperature Reactor

Introduction

The Thorium High Temperature Reactor (THTR, also commonly dubbed *the purple garbage can*) is a late IV-tier large heat generator added by BartWorks. It consumes TRISO pebbles (check usage for the type) and turns IC2 coolant into hot coolant at a rate of 4800 L/t. It is generally not used as a power source at all, due to its cost and the lack of documentation. However, at full capacity this multi alongside appropriate heat exchangers and turbines is capable of producing about 90 amps of LuV power.

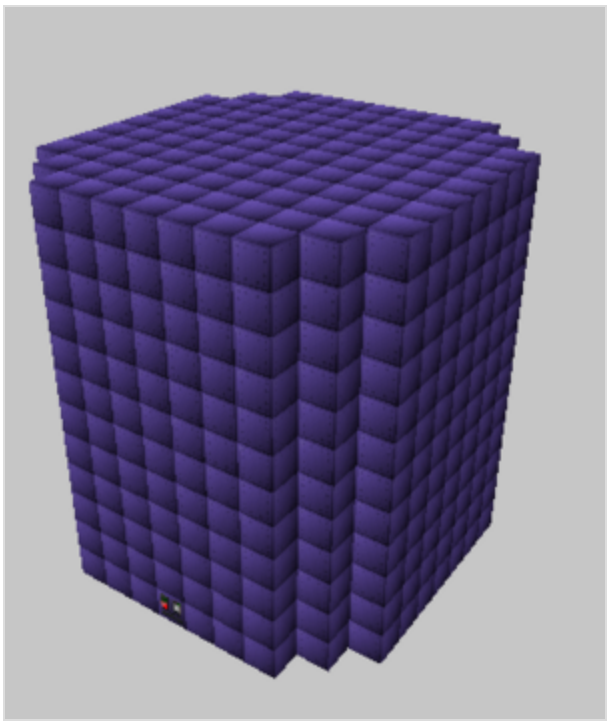
Thorium High Temperature Reactor	
Mod	Bartworks
Tier	IV
Size	11x12x11
Rotatable	No

Construction

The reactor controller is made with one ZPM circuit, and uses at least 500 radiation-proof machine casings (27 thousand lead ingots minimum).

The structure is hollow and 11 x 12 x 11, with the corners and two touching blocks being air, making this multi cylindrical, with inputs on the top, and outputs, maintenance and power on the bottom.

An auto-taping maintenance hatch or any other maintenance solution is suggested due to the lengthy process time of the recipe.



THTR (No hatches)

Usage

The multiblock uses TRISO pebbles (WITHOUT a specified fuel after the name) as fuel. It has an internal buffer of 675k, and it is suggested to keep this buffer full at all times, as each process consumes 0.5% of its internal buffer when the buffer is full, but this percentage increases exponentially the lower the internal buffer is. The buffer must have at least 100k pebbles to begin the process. Additionally, 730k helium is required to 'prime' the multi, and is only required to commence the first process, assuming there is no downtime between processes.

Each operation takes 9 hours, and for the whole time the multi will convert IC2 coolant into hot

There are three main aspects to keep in mind when setting this multi up- fuel, coolant conversion and logistics.

Fuel

A reasonably large fuel line is required to produce enough pebbles to keep this multi running. The fuel production line does not have to be very fast due to the operation time of the multiblock.

For every 256 TRISO pebbles, you need: 64 carbon dust, 64 raw silicon dust, 64 graphite dust, 64 thorium 232 dust, and 4 uranium 235 dust. Due to the truly massive quantity of Th232 required, the EBF line is suggested as nitric acid is significantly easier to source in quantity than boric acid. Carbon and silicone are easy to source, and graphite can be produced in an EBF with you guessed it, carbon and silicon.

When the pebbles are burnt out, each pebble can be centrifuged for a 3% chance of one lead dust. Maybe its an apology from the devs to say sorry for how unappealing this pebble-filled path is.

Coolant conversion

To convert coolant to steam, heat exchangers are required. To keep up with the amount of hot coolant this reactor produces, you will need 60 large heat exchangers at minimum, or 6 extreme heat exchangers, or two whakawhiti wera XL (GT++) heat exchangers. Due to the flow rates, superheated steam will always be produced at a ratio of 1L hot coolant to 400L superheated steam, requiring a constant and insane amount of distilled water. multiple XL HP steam turbines and XL steam turbines should be used to reap the rewards of power.

Logistics

Due to the massive quantities of steam being transferred, you need an appropriately capable method of fluid transport. I suggest fluid p2p due to the unlimited flow rates, but for a more greggy approach you can use huge staballoy fluid pipes.

If the math (or anything really) is wrong in this article go nag SpicyTheDuck on discord.

Thank you to Reflex18 for introducing me to this truely wonderful purple multi.

Template:Navbar Bartworks
