

Antimatter Production

A fuel source widely used throughout the SARP setting, Antimatter can be found in many forms. What this article hopes to do is create a written documentation of how Antimatter is produced in the SARP setting as well as other methods of production for more low-tech nations.

Production

Starship

Energy Conversion

The usual Yamataian method is to draw energy from the aether/quantum foam and then convert that energy into the (anti)matter. Positrons are a favorite because they take minimal effort to make (whole molecules, especially big ones, take longer and more effort). *Only Yamatai or the SMX have any possibility of creating Antimatter in this manner.*

Solar

Particle Accelerators

Producing antimatter using particle accelerators is under normal circumstances prohibitively expensive, often because producing antimatter tanks prohibitive amounts of energy. By simply placing solar collectors in the orbit of a sun one can reduce power costs dramatically by harvesting its virtually free energy. Each particle accelerator only produces a trickle of antimatter, so to speak, but since the energy is abundant from a sun one can run many particle accelerators at once to make a fair amount of antimatter.

Harvesting Probes

Antimatter is sometimes released by suns in the form of solar flares, which can then be harvested by probes. This might be usable if one needs small quantities of antimatter in a pinch, but is far from economically feasible.

Black Holes

Hawking Farms

No natural vacuum exists in natural environments, and black holes are no exception. The vacuum is actually filled with a sea of zero-point energy, which fluctuates, and thereby produces particle pairs: a particle and an antiparticle. However, since these particles have slightly different trajectories upon creation there is a chance one may fall into the black hole while the other successfully escapes.

By separating then collecting these escaping particles and antiparticles, one can utilize them as a form of antimatter fuel. This is likely best done using some sort of energy-base field to sift the particles apart so they may be harvested without risk.

Terrestrial/Subterranean Facilities

Particle Accelerator / Power Plant

Theoretically, one can run particle accelerators anywhere by building the proper facilities and maintaining power supplies. When fortified or hidden antimatter factories are needed this is the best way to go.

However, this method is extremely (if not prohibitively) expensive. Working on a planet will exponentially reduce the incoming solar power due to distance, not including atmospheric dampening of usable able energy. This usually forces you to produce very large quantities of energy artificially, which will increase upkeep costs by a large factor. Furthermore, an underground facility is static, unlike a satellite, so repairs and part replacements are often much slower and costly.

Don't expect to run a terrestrial or subterranean facility without access to bulk power plant parts. Even then your production will suffer a considerable hit since you could likely run many more stellar farms for the same cost as one of these facilities.

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