

3 Comments

Could at least some of this waste be used for electricity generation?

REPLY



499 DAYS AGO | 11/17/2009

nuclear waste

Joro 05

4 Comments

Depend on kind of nuclear waste. If you asking about depleted nuclear fuel, yes, it is possible but would be expensive. Enrichment process is needed. Secondary activated wastes - like gloves, tools, clothes and etc. (used by NPP workers)is impossible to use as fuel.

REPLY



499 DAYS AGO | 11/17/2009

Re: nuclear waste

Omi

5 Comments

Actually even enriched nuclear fuel would be useless for this technology. To see why, we must consider the actual obtainable power:

Whenever a radioactive atom decays and emits radiation, we have a chance (30% for tritium, quoted from the article) to change that into electrical charge. So an element like tritium, with a low half-life, decays quite quickly, producing a reasonable amount of power. Uranium however, has a half-life measured in billions of years. The amount of electrical power produced per unit time is therefore extremely low.

Mind you, if you wanted a battery to produce attowatts (10^{-18} W) for a billion years, nuclear waste might come in handy. :)

REPLY



20 DAYS AGO | 03/11/2011

Re: nuclear waste

TheFamous

5 Comments

i agree but at the same time woutent shorting it to a year for publick use be more biabul it would contain less readio ative icatopes and brack downen i do know that they have developed a process to compleatley couse readoative deacay they could use this to power plasmacation witch is used to cous decay and recuralate the system witch would solve all or the readio ative wast if we re use this decay

VIDEO

Engineered Organisms for Making Cheap Sugar



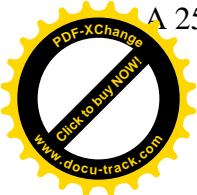
[App Turns Your Phone Into a 3-D Scanner](#)

[Printing Striped Batteries](#)

[A Search Engine for the Human Body](#)

[Shell Partner Makes Cheap Biofuels](#)





but at the same time radio active decay is allso dangrous

REPLY

MORE



499 DAYS AGO | 11/17/2009

tritium safety

ms

190 Comments

While the decay products of tritium are safe, tritium itself is toxic. As an isotope of hydrogen, it can be incorporated into the body chemically, where its decay can produce damaging radiation. Presumably no tritium leaks or tunnels out of these batteries?

REPLY



498 DAYS AGO | 11/18/2009

Re: tritium safety

Tanj

2 Comments

Tritium is chemically hydrogen, and thus easily and strongly bound to various kinds of surface including many metals. You could remove it if you try, but the passive safety within the multilayer foil sandwich should be good.

REPLY



499 DAYS AGO | 11/17/2009

conversion efficiency

ms

190 Comments

"silicon carbide ... can convert 30 percent of the beta particles that hit it into an electrical current"

I assume you mean that 30% of the incident beta particle energy is captured as electrical energy? Your phrasing might suggest that each incident beta particle, i.e. electron, on average produces $.3 \times 1.6 \times 10^{-19}$ amp-seconds of current.

REPLY

Advertisement



499 DAYS AGO | 11/17/2009

Re: conversion efficiency

Omi

5 Comments


I think what the author meant is that the conversion of captured beta particles is 30%, ie that all of the free electrons are absorbed in the silicon carbide layer, and 30% of those adsorption events create a unit of charge. The analogy useful here is solar cells - virtually all of the incident radiation (light in this case)



replay

DB2. As low as 1/3 the cost of Oracle Database.

Get the straight story on DB2 ▶



is absorbed, but only some fraction of this radiation is converted to electricity.

REPLY



Tanj

2 Comments

498 DAYS AGO | 11/18/2009

Re: conversion efficiency

It is more likely that all electrons reaching the SiC are absorbed, but only 30% are travelling in the right direction to get there. The tritium decays in all directions plus there will be some electric potential difference to deflect electrons not travelling "up" enough. The beta decay (according to Alpha) has an 18.6 kV potential so the charge difference across the gap should be quite large if they want to maximize efficiency. A tiny trickle of current at high voltage. But that voltage will turn electrons away if they are on shallow trajectories.

REPLY



TheFamous

5 Comments

20 DAYS AGO | 03/11/2011

Re: conversion efficiency

i know at one point they were exparatamenting with salt cooled nuckler genarator but the salt wore down the pices and coused a magor dazaster coudent the put the layer that broke in a persherized cover ant this world fix the ware down problem as it is recycled throw sodim un like watter dosent lose heat as fast they mete even be able to spin a turbine with liquid led sence it dosent tack readio ativity

REPLY

20 DAYS AGO | 03/11/2011