Tackle e-waste and dispose of your old appliances the right way

Getting rid of electrical and electronic devices is not as easy as throwing them on the refuse pile. e-Waste could be tomorrow's big crisis that South Africans should be tackling today if figures from the Gauteng provincial government are to be believed.

"South Africa produces around 360,000 tons of e-waste annually, with Gauteng contributing 55% of that volume," says Patricia Schröder, spokesperson for the official producer responsibility organisation (PRO) Circular Energy. "Consumers need to be better educated on how to properly dispose of their appliances if we are to avoid an environmental catastrophe."

New legislation titled Extended Producer Responsibility (EPR) will shift responsibility to importers and manufacturers to ensure that their products and services come with environmentally sound management and disposal, which includes recycling.

What e-waste? "e-Waste comprises most electrical and electronic appliances or devices found in the typical South African household or business," says Patricia. This includes domestic appliances, power tools, digital devices and computers, electricity generation and storage devices, lighting, reusable and disposable batteries, cables and the like.

The construction of such appliances and accessories demands that they are never simply thrown away as they could contain materials that are potentially explosive, poisonous or otherwise hazardous, thus contaminating surrounding areas as they break down or posing a physical threat to health and safety.

It should also be noted that using a "smash centre" to dispose of appliances with "a bat for fun or for you to release frustration" is not just an unhealthy and unsafe practice, it is illegal and contravention of the National Environmental Management Waste Act of 2008.

"Items require specialised handling, recycling and treatment by suitably qualified persons within safely isolated environments," says Patricia, adding that it also makes good business sense to manufacturers. "e-Waste that is lost to landfills and refuse dumps means that scarce resources which could have been harvested and recycled must now be mined afresh."

One of the easiest ways to safely and responsibly dispose of appliances is with services like Circular Energy. The non-profit organisation based in Durban, KwaZulu-Natal offers a dedicated collection service for used or waste electric or electronics.

Enquiries: www.circular-energy.org

Fuses: Knowing your AC from your DC

Direct Currents (DC) are easy to configure but, compared to Alternating Currents (AC), they are difficult to interrupt due to the absence of a natural current zero. That makes it vital to use the correct fuse in your circuit. A small part of any circuit, fuses are critical to the integrity of your project – and it might be something your team has put to the back of their minds.

A major benefit of AC is that the flow can be reversed multiple times without failure, whereas DC cannot be chopped and changed in a circuit, says Clive Fletcher from Swan Electric. "AC returns to zero magnitude with each change, while DC flows in one direction only. There is no reversal opportunity, nor does DC zero out in magnitude." So with no help from the current itself, a circuit's fuse is left to bear the burden of stopping these currents before any damage can be done to the construction.

"It's vital to the integrity of your circuit that you use the correct fuses," says Fletcher, adding, "DC fuses are specially designed longer in physical dimensions than their AC counterparts because they have to be able to interrupt the more powerful DC current. AC fuses simply would not be able to handle the strain (of a DC) and the circuit would fail as a result."

It is important to remember when designing and constructing a circuit that fuses with equal AC and DC voltage ratings mean that the DC interrupt rating is going to be lower than the AC interrupt. "You need to take that into consideration, and make sure you do not put AC fuses into your DC circuit if you want to have a successfully completed and operational circuit," adds Fletcher.

Enquiries: www.swan-electric.co.za