Materials Report
November 22nd, 2010

This report details the materials used and regulatory compliance for each component of one of our solar backpacks.

When sourcing materials for our products, we look for ones with lower embedded energy and less toxicity than traditional materials without sacrificing performance or substantially increasing costs.

Using recycled materials is one way to reduce the energy required to manufacture our products. Recycled PET (RPET) takes less energy and other resources to produce, reduces plastic in our landfills and has the same performance as virgin nylon.

Many elements of the bag, from the webbing to the buckles and interior padding are made from some form of plastic. In some cases, there are several different materials alternatives. The Greenpeace plastics pyramid provides guidance on which are preferable.

The European RoHS Directive is a tool that helps make sure our electronic components have minimal levels of toxic chemicals. RoHS stands for Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations. The detailed regulation and explanatory booklet are very readable, but the core of the directive restricts electronics from entering the European market that contain more than agreed upon levels of specific chemicals:

Lead - < 0.1%
Mercury - < 0.1%
Hexavalent Chromium < 0.1%
Polybrominated Biphenyls < 0.1%
Polybrominated Diphenyl Eithers < 0.1%
Cadmium < 0.01%

This is a work in progress. When we started, RPET fabric had just come into existence and we had to struggle to get our backpack supplier to use it. We now have multiple RPET fabric choices and it is considered commonplace to use RPET in bags. Similarly, most of our electronics suppliers now only produce products that are RoHS compliant.

Comments and suggestions about how we can continue to improve are always welcome.

Shayne McQuade
CEO

Backpack Fabric and Construction

Fabric 100% Recycled PET instead of nylon. Fabric has TPE waterproof backing instead of PVC.

Logo made of silicone instead of PVC

Mold that encases solar panels and shoulder padding material is EVA with PU backing

Interior Padding is EPE

Zipper pulls coated in Silicone instead of PVC

Zipper fabric is virgin PET and zipper teeth are nylon. We have not found a supplier that uses recycled PET for zippers.

Padding is EVA

Webbing 100% Recycled PET instead of nylon

Plastic buckles are virgin nylon. It is possible to make these from recycled materials, but they are not yet very strong.

Lithium Ion Universal Battery
The RoHS directive does not apply to the battery cells, but the circuitry and case are RoHS compliant

MSDS available upon request

Batteries should be recycled properly or returned to Voltaic Systems. Do not ship damaged batteries.

Adapters and Cables
All adapters and cables are RoHS compliant

Coating on outer wire is PU instead of PVC

Coating on inner wire is PP instead of PVC

Plastic for MiniUSB, MicroUSB and Samsung adapters is RoHS Compliant PVC. We are looking to switch once an alternative becomes available.

Plastic for universal adapters is ABS

Solar Panels
Our solar panels are RoHS compliant*

MSDS available upon request

Solar panels can be retuned to Voltaic at any time

*Our Orange panels have not been tested but are believed to be RoHS compliant