



Q&A

Content

1. General information	
Basic information to distributors	3
2. Product information	
myFC PowerTrek	7
The Puck	11
3. User conditions	15
4. Safety	17
5. Environment	18

1. General information

What is myFC PowerTrek?

myFC PowerTrek is the world's first portable fuel cell charger for consumer use that runs on ordinary water. myFC PowerTrek provides instant power to mobile phones and most devices that can be charged via USB. With myFC PowerTrek, you are never dependent on being close to the power grid and you have instant power anywhere, anytime. It is a 2-in1 solution that is both a fuel cell and a portable battery pack used by people who spend time away from the electricity grid. The portable battery pack can be operated on its own as a ready source of power or storage buffer for the fuel cell. The fuel cell enables instant charging from a deflated battery state without ever needing a wall charge. myFC PowerTrek provides instant power anywhere to electronic equipment such as mobile phones, digital cameras and GPS devices.

Why should I buy myFC PowerTrek?

myFC PowerTrek is a unique hybrid solution that is both a portable battery and a fuel cell.

The portable battery pack can be operated on its own as a ready source of power or storage buffer for the fuel cell. The fuel cell enables instant charging from a deflated battery state without ever needing a wall charge.

Who needs a myFC PowerTrek?

myFC PowerTrek is the preferred alternative portable source of power for outdoor enthusiasts, travelers and other people who spend time away from the electricity grid. myFC PowerTrek is also a preferred option for people to include in a safety kit (power outages, natural disasters etc.) since it doesn't need any sunlight to charge and it doesn't require re-charging in a power socket. myFC offers instantly available energy to people that loves the value that their electronic gadgets gives them but hates the dependency of the electricity grid.



1. General information

Why should I buy myFC PowerTrek instead of another power charger?

myFC PowerTrek is a preferred option in comparison to alternatives such as ordinary disposable batteries, rechargeable batteries or solar cells because it is a more reliable source of power. Unlike solar cells myFC PowerTrek is weather independent and in comparison with rechargeable batteries it does not require to be re-charged in a power socket. myFC PowerTrek is also a preferred option compared to disposable batteries since myFC PowerTrek offers a 2-in-1 solution equipped with an internal battery; the charger can function with both the fuel cell and the portable battery pack.

Which devices can I charge with myFC PowerTrek?

myFC PowerTrek will charge any device that can be charged via an USB port, i.e. 5V DC output and follows the USB standards.

How do I know if the device I want to charge is USB-compliant?

In the USB-standard you find a graph explaining whether the device is USB compliant or not. However, it is not always easy to know the amount of power that your device requires. Best way to find out is to ask the manufacturer of your device.



1. General information

How do I use myFC PowerTrekK?

(Charging instructions - Fuel Cell mode)

For illustrated instructions on how to use your myFC PowerTrekK, please see the User Manual.

1. Open the unit by releasing the latches and separate the Engine from the Tray System.
2. Open the Water Tank Cover by pressing the front clasp.
3. Open the tank by rotating the lid and fill with water –make sure you fill up the water tank all the way up to the rim. Too little water may result in a shorter runtime and less energy output.
4. Close lid tightly, but avoid pressing it down.
5. Close the Water Tank Cover by pushing it down and lock it with the clasp.
7. Insert a sealed myFC PowerTrekK Puck into the Fuel Compartment with the top seal up, then REMOVE the top seal before going to the next step. Please note that the myFC PowerTrekK Puck is a SINGLE USE unit and SHOULD NOT be reused. Once a puck has been inserted it is considered as used. NEVER restart your PowerTrekK with a used puck.
8. Close the unit by fitting the Engine on top of the Tray System. The posts on the Tray System must align with the slots of the Engine. Close the latches by pushing them down and locking them to the Tray System. Your myFC PowerTrekK starts to generate power within a minute (the FC Indicator LED turns green). As long as no external device is connected, the generated power from the puck will charge the Internal Battery.
9. Please note that the power generation and the start-up time depend on outer conditions (see page 9).



1. General information

Can I charge my tablet with the myFC PowerTrekK?

No, unfortunately the myFC PowerTrekK will not be able to charge your tablet since it requires too much power.

What is the energy output of myFC PowerTrekK?

Output voltage: 5V DC. Output power: 5 W in battery mode, 2.5 W in fuel cell mode.

What is the price for myFC PowerTrekK and the myFC Power- TrekK Pucks?

The suggested retail price for the myFC PowerTrekK charger is 199€.

Will myFC PowerTrekK make me totally independent from the power grid?

Yes, myFC's ambition is to use fuel cells to free all people from their dependence of the electricity grid. As long as you bring the necessary number of Pucks you never have to recharge in a power socket.

What is your return policy?

Our return policy is in accordance with the consumer laws in the country where you acquired your myFC PowerTrekK and always requires that the package is unopened. Please contact support@myfc.se regarding any problems.

What is your warrantee policy?

We have done our best to assure you years of trouble free operation from your device. myFC PowerTrekK is guaranteed to be free from defects in material and workmanship for 12 months or according to the country requirements by law from the date of purchase. If, during the applicable warranty period from the date of original consumer purchase, myFC AB finds your myFC PowerTrekK to be defective, myFC will repair, or at its option replace with a new or refurbished equivalent, without charge for part or labour. Normal wear and tear is not covered by this warranty.

Do I need to purchase special cables, tip or any other additional parts?

myFC PowerTrekK comes with three different USB-tips: micro-USB, mini-USB and an Apple connector. myFC always recommend to use the provided tips in the box. To guarantee compatibility with your device, use the provided connector and tips. Some devices can be powered via USB, but are not truly USB compatible. If such a device should require more power than the myFC PowerTrekK rated output, charging is not possible.

The iPhone 5 is currently not possible to accommodate with standard Apple lightning USB cable. However, myFc iPhone 4S tip together with Apple 30-to-lightening converter (<http://store.apple.com/us/product/MD823ZM/A/> lightning-to-30-pin-adapter) makes the myFC PowerTrekK compatible with iPhone 5. We are seeking a more user friendly solutions and our aim is to have a tip solution available as close as possible to the launch.

Following a planned software update end of summer 2013 users will be able to use the original charger cord.

2. Product information

MYFC POWERTREKK

How does myFC PowerTrek work?

myFC PowerTrek is a 2-in-1 solution that is both a portable battery pack and fuel cell. The portable battery pack can be operated on its own as a ready source of power or storage buffer for energy. The fuel cell enables instant charging of your device without ever needing a wall charge. myFC PowerTrek provides instant power to electronic equipment such as mobile phones, digital cameras and GPS devices.

What is fuel cell technology and how does it work?

A fuel cell is an electrochemical device that transforms the chemical energy of a fuel (hydrogen, methanol, natural gas, gasoline etc.) and an oxidant (air or oxygen) into electrical energy. The fuel and the oxidant react at two different electrodes – the anode and the cathode – and are separated by an electrolyte that transmits ions (e.g. H⁺, OH⁻ etc.) from one electrode to the other. Fuel cells have many similarities with batteries, but with the fundamental difference that the electrodes are not consumed in the process – a fuel cell will run as long as fuel and oxidant (air) is provided to the electrodes.

What is special about myFC's fuel cell technology?

myFC specializes in the development of a Proton Exchange Membrane Fuel Cell, also known as Polymer Electrolyte Membrane Fuel Cell (PEMFC). myFC's FuelCellSticker™ utilizes hydrogen as a fuel, with air (oxygen) as an oxidant. With the use of hydrogen as a fuel, the only by-product generated is water, which evaporates into the surrounding air. myFC's FuelCellSticker™ is planar in design, and its compactness makes it ideal for integration into mobile applications of all sizes.

A proton-conducting polymer membrane is sandwiched between a cathode and an anode. At the anode, upon reaction with a catalyst, the hydrogen gas separates into protons (positively charged hydrogen ions) and electrons. The protons are conducted to the cathode, through the polymer electrolyte membrane, while the electrons travel along the circuit, producing a current. The electrolyte plays a key role in only allowing the positive hydrogen ions to pass through, obstructing the negatively charged electrons. At the cathode, the hydrogen ions and electrons combine with oxygen (from the air), forming water vapor/water. The fuel cell will generate electricity as long as it is supplied with hydrogen and oxygen from the air.

What is hydrogen?

Hydrogen is the lightest and most abundant chemical element, constituting roughly 75 percent of the universe's chemical element mass. Today a large amount of hydrogen is used as raw material in industries. In the future hydrogen may also play an important role in society's transformation from fossil fuels to renewable alternatives. Hydrogen powered fuel cells can power anything from cars and boats to cell phones and computers. They can also be used to supply electricity and to heat houses.

2. Product information

MYFC POWERTREKK

How does hydrogen effect the environment?

Hydrogen is an alternative energy carrier to fossil fuels and oil. The magnitude of the environmental gains possible through the use of hydrogen as an energy carrier depends on how the hydrogen is produced and transported, as well as how efficiently it is transformed. There are two primary areas where the environmental potential of hydrogen is especially significant: in transportation and as an interim storage of renewable energy.

Through the use of hydrogen together with fuel cell technology it is possible to achieve a radical decrease in local pollution of carbon dioxide, nitrogen oxides and particles from the transportation sector. Although the production of hydrogen from fossil fuels affects the environment it is an advantage that the carbon dioxide emissions can be separated already on the production site. This becomes evident when hydrogen is used as vehicle fuel, avoiding pollution from every individual vehicle.

The only emission from a fuel cell reacting with hydrogen is pure water. The environmental gains are high, provided that pollution in the hydrogen production process is kept low. A fuel cell is approximately twice as energy efficient as a combustion engine if used in a regular car. The effect is that, using the same amount of energy, a fuel cell car can drive twice as far as a car with a combustion engine can.

Modern batteries have even lower energy losses than those of fuel cells. However, these need to be recharged and are relatively heavy. Therefore, a combination of batteries and fuel cells can be advantageous in many areas, particularly in vehicles. For example, the reach of an electric car of family size is up to 500-600 kilometers of pollution free driving, since the fuel cells recharge the battery while the car is in use.

A growing part of the transportation sector is the use of fuel cells as APU (Auxiliary Power Unit). This kind of support power aggregate is used due to the large amounts of energy required to run cooling, air conditioning and other systems found in trucks. Today, this is mostly powered by small diesel engines or by idling the main engine, both of which create pollution and noise. The possibility of using hydrogen as APU in aircraft and large motor-boats is also being explored.

Furthermore, hydrogen is expected to play a leading role as support in the development of renewable energy systems. Solar, wind and wave power are by their nature uneven sources of energy. Methods for interim storage are required in order for them to have any real consequence in the future. Here, hydrogen could even out the effect and function as storage for surplus energy. This would increase the flexibility of energy systems such as wind power, and help to accelerate the expansion of renewable energy.

[Although hydrogen could be produced from fossil fuels, the powder inside the myFCPowerTrek Pucks (that liberates hydrogen in reaction with water) is not made from fossil fuel].

2. Product information

MYFC POWERTREKK

Does myFC PowerTrek come with different USB-plugs?

Yes, myFC PowerTrek comes with three different types of USB-plugs(tips).

What is the weight of the myFC PowerTrek?

246 g or 8,7 oz (top and bottom)

What is the size of myFC PowerTrek?

Charger dimensions (top and bottom): LxBxH 128x66x42mm or 5x2,6x1,6"

How long will it take to charge a device using myFC PowerTrek?

From battery mode: myFC PowerTrek will charge your device at approximately the same time that it takes to charge it from the grid.

From Fuel Cell mode:Charging from the Fuel Cell mode takes longer and depends on the device being charged.

How many watt-hours can I get from one myFC PowerTrek Puck?

4 watt hours \pm 10%. I.e. 4 watts during one hour or 2 watts during 2 hours, which is equivalent to approx. one smartphone charge.

How many watt-hours can I get from the internal battery in the myFC PowerTrek?

5 watt hours \pm 10%.

What is the capacity of myFC PowerTrek internal battery?

1500 mAh i.e.

How long does it take for the internal battery to unload?

It depends on various variables such as outer conditions and the power requirement from your device. Normally Li-Po batteries discharge at a higher rate when cold.

Which outer conditions affect the power generation and start-up time ?

For example, low temperature, wind and rain can have a cooling effect on the Puck and fuel cell and slow down the start-up of the reactions.

High temperatures and direct sunlight on a running charger can lead to overheating. When the internal temperature of the charger reaches 58 degrees Celcius the heat generating fuel cell current will be automatically decreased and thus, the myFC Powertrek will operate less efficiently.

2. Product information

MYFC POWERTREKK

How long does it take to charge the internal battery from the grid?

Approximately 2 hours from the grid.

From most computers (<500mA) approximately 3 hours.

What happens if I do not apply water?

Nothing, the process will not start.

What will happen if I don't fill the watertank properly?

If an insufficient amount of water is applied there is a risk that the fuel cell will run out of fuel and not be able to provide the energy possible from one puck.

Why does myFC PowerTrek have an internal battery?

myFC PowerTrek is a hybrid fuel cell charger for portable electronics, equipped with an internal rechargeable Li-Po battery for energy storage. Equipped with an internal battery, myFC PowerTrek can also be used as an ordinary travel charger and you will be able to draw a maximum output power of 5 W.

Can I use myFC PowerTrek without a myFC PowerTrek Puck?

Yes, you can charge your device with power from the Internal Battery only. You can charge the Internal Battery via the Puck or from a USB energy source such as a computer or directly from the wall.



2. Product information

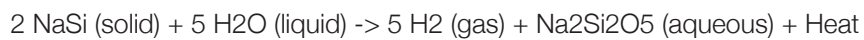
THE PUCK

How does the Puck work?

The myFC PowerTrek uses a fuel cell to convert hydrogen gas and oxygen into usable energy. The hydrogen needed for this process is generated within the Puck. Each Puck contains two water-reactive materials—sodium silicide (NaSi) and sodium borohydride (NaBH₄). Both materials in the mixture are non-toxic and chemically stable in ambient temperature and pressures. The mixture that is stored within the Puck is a solid powder; when water is delivered into the Puck, it initiates a chemical reaction that produces the hydrogen needed by the fuel cell.

While both of these materials will individually generate hydrogen, each sources the hydrogen differently. Sodium silicide extracts the hydrogen externally from the water (H₂O), while the sodium borohydride breaks the hydrogen bonds that are internal to the compound (BH₄).

When the hydrogen generation process begins within a Puck, the sodium silicide is the first material to produce hydrogen. Sodium silicide generates hydrogen according to the following chemical reaction:



The heat that is generated by the sodium silicide reaction is then used to initiate the sodium borohydride reaction process according to the following chemical reaction:



The two materials generate hydrogen simultaneously until the mixture is fully depleted. If the delivery of water is halted during this process, the hydrogen generation process will stop.

Why do I have to use a Puck?

A Puck provides fuel for the fuel cell much like gasoline provides fuel for your car's engine.

To create energy, the fuel cell needs a fuel, like hydrogen. The chemical content in the Puck frees the hydrogen gas from water and that hydrogen is then directed to the myFC PowerTrek's fuel cell to generate energy for your electronic device. Once the content in a Puck is depleted, it must be replaced with a full Puck in order to continue generating electricity.



2. Product information

THE PUCK

Why is water needed for the process?

Water is needed to initiate and sustain the chemical reaction that generates hydrogen. There is NO hydrogen gas stored within the Puck or the fuel mixture. Instead the hydrogen is released from water (H₂O) and the sodium borohydride. The fuel mixture will sit dormant until it comes into contact with water. When water is introduced to the Puck, the chemical reactions occur instantly and hydrogen gas, heat and water vapor are released. Any type of ordinary water is acceptable to generate hydrogen including tap water, stream water, puddle water, etc.

What is a PowerTrek Puck made of?

The body of the Puck is an aluminum can that holds the binary fuel (CAS number: 12164-12-4 & 16940-66-2). The aluminum can is then permanently attached to an injection molded plastic cap, which is used to control the release of hydrogen gas to the fuel cell.

After the fuel mixture is fully reacted, the Puck will contain two benign by-products (sodium silicate and sodium metaborate). Both by-products are chemically benign, non-hazardous, and safe. In fact, these by-products are used in many industrial manufacturing processes and many common household products (like concrete, detergent, glass, makeup, and toothpaste) are produced using these materials.

Even if a Puck is fully depleted, it should NEVER be disassembled.

Are there harmful by-products?

No, the by-products from the chemical reaction are sodium silicate, the main ingredient in toothpaste and detergent, and sodium metaborate (a derivative of borax), a material that is commonly used in the production of soaps, detergents and cosmetics.

What is the charging capacity from one Puck?

One Puck will charge a smartphone with a fully depleted battery approximately once. There is an additional smartphone charge in the internal battery.

What is the energy content of a myFC PowerTrek Puck?

4 Watt-hours ±10% per Puck (i.e. 4 Watts continuous for one hour or 2 Watts continuous for two hours).

What is the weight of a myFC PowerTrek Puck?

30 grams (1 oz)

What is the size of a myFC PowerTrek Puck?

51 mm (2") in diameter and 20 mm (0,8") in height

2. Product information

THE PUCK

What happens if I break the Puck and fuel gets out (not on skin or clothes)?

The Puck is designed to never be opened.

However, if a Puck should break because of misuse and the content spills out, it is important that you **DO NOT** pour any type of liquid on it (**NO WATER OR OTHER LIQUIDS**) and avoid all potential ignition sources.

If a Puck should be opened, first find a bucket or other large open container. Add several liters of water to the bottom of the container. Transport the container outside into a well ventilated space. Then carefully scoop up the spilled materials and slowly add the mixture to the container. Add the mixture to the container at an arms length and keep your face away from the top of the container. As the mixture contacts the water, it will react and generate hydrogen, which will then dissipate into the atmosphere (towards this purpose, please perform this process in an open air environment- preferably outdoors – with another party present). Finally, use a **DRY** towel to wipe up any residue that may remain where the spill occurred and add the towel to the container with water as well. After all of the solid materials are eliminated, the water can be disposed of normally by pouring it down a drain.

In the unlikely event that a Puck were to rupture, in no circumstances should you ever put your face near or over the Puck.

If the fuel mixture comes in contact with skin, **DO NOT** put your skin in contact with water until all powder is first removed. To do this, carefully wipe the powder off of your skin using a dry towel. After the powder is removed, you can rinse your skin normally. Then add the dry towel and any clothing that came in contact with the powder into a bucket filled with water. After soaking and rinsing, the towel and clothing can be laundered normally.

What happens if the content in a Puck come in contact with water?

Hydrogen will be generated immediately once the fuel mixture is exposed to water. The hydrogen generation process is designed to be isolated and wholly-contained within the Puck. The Puck itself is waterproof; if water comes in contact with the outside of the Puck there will be no reaction.

However, if the contents of a Puck are ever spilled and they then come into contact with water, the hydrogen reaction will begin. If a heat source is present, there is the possibility of ignition. If a Puck is ever disassembled through misuse, please follow all instructions listed above for safe handling in such a scenario and avoid all potential contact with water or any other type of liquid.

2. Product information

THE PUCK

How do I store the Pucks?

The Pucks can be stored indefinitely in the same way you would store a battery, preferably in a cool and dry place with temperatures ranging from 0-40 degrees Celsius.

Can I re-use or re-load a Puck?

No, the Pucks are designed for one time use. Never insert a used or partially used Puck in the myFC PowerTrek. Reusing the Puck may cause the Puck to overheat, contents to leak, or irreversible damage to your fuel cell charger.

Are the Pucks rechargeable?

No, Pucks are not rechargeable. The Pucks may be treated as disposable waste or recycled in accordance with your local recycling regulations.

What should I do with the Puck after it has been used?

Make sure the Pucks have cooled off before disposal or shipping. Then, preferably recycle them as metal waste or if that is not an option, throw them in the bin.

Must I only use myFC PowerTrek Pucks?

Yes

What is the shelf life of a myFC Puck?

A brand new Puck is capable of being safely stored for many years. If a Puck has never been used, it can be stored without compromising the quality of the Puck or reducing the amount of hydrogen that can be produced. The Puck is designed to be a single-use fuel cartridge. It should not be stored after use.



3. User conditions

Can I use the myFC PowerTrek anywhere?

The ideal operating temperatures are 5-30 °C. Do not operate myFC PowerTrek upside down, on the sides or hanging from your backpack when containing a Puck. Do not operate myFC PowerTrek in your pocket, in a backpack or covered with cloth when containing a Puck.

Will myFC PowerTrek make me totally independent from the power grid?

Yes, myFC PowerTrek makes green energy instantly available, everywhere for everyone. myFC's ambition is to use fuel cells to free all people from their dependence of the electricity grid.

Can I charge while on the go?

No, myFC PowerTrek operates at its best when placed on a flat surface in open air.

Can I use myFC PowerTrek without the Puck?

Yes, myFC PowerTrek is a 2-in-1 solution with an internal rechargeable battery which can be used on its own.

Can the added water be dirty?

myFC PowerTrek works best with clean freshwater.

Do all fluids work or only water?

myFC PowerTrek works best with clean freshwater. Other liquids may work but with less efficiency and may also cause damage to the fuel cell.

Does it start to charge directly when I insert the Puck and add water?

Yes, within sixty seconds.

How much water do I add?

Approximately one table spoon.

Why is my myFC PowerTrek not charging as much as expected?

All fuel cells need to be warmed up if new or unused for a longer time as they are sensitive to dehydration. The effect can be that the first or second Pucks you run might not give their full output, but after being warmed up the fuel cell will run as specified. To avoid dehydration we recommend that you store your charger in a sealed plastic bag when not used, and that you run a Puck frequently.

3. User conditions

How much rain and moisture can the charger unit withstand?

The charger is splash proof, which means that you can use it in rain and in humid environment. However, don't swim with your charger.

Can I operate the charger unit when it is standing up or upside down?

No, myFC PowerTrek should be on a flat surface in a well-ventilated area.

Can I remove or exchange a cartridge at any time while myFC PowerTrek is operating?

In theory yes, but please be careful. Due to the exothermic reaction by the Puck and water, the Puck can be hot to the touch. We recommend that you wait for the Puck to cool off before replacing it with another.

How do I remove the Puck when used?

Wait until myFC PowerTrek and the Puck have cooled of and then simply remove the Puck.

Can I bring myFC PowerTrek and Pucks on an airplane?

Yes. You are allowed to bring one cartridge with the charger plus two spare fuel cell cartridges may be carried in the air cabin.

May I use myFC PowerTrek on an airplane?

It's not illegal to use your myFC PowerTrek on an airplane. However, the IATA regulations doesn't allow the charging of a lithiumion battery on board a plane, so in reality the answer is no. Make sure you follow your airlines regulations before charging.



4. Safety

Are there situations where the MyFC PowerTrek could be dangerous?

The myFC PowerTrek is completely safe when you use it appropriately. Should you tamper with or break the Pucks it is important not to get the Puck's content in contact with your skin. If the fuel mixture comes in contact with skin, DO NOT put your skin in contact with water until all powder is first removed. To do this, carefully wipe the powder off of your skin using a dry towel. After the powder is removed, you can rinse your skin normally.

What happens if I put another fluid in the myFC PowerTrek?

Don't use any other liquid than water, preferably fresh water between 5–35 °C.

What do I do if the fuel cell charger runs hot to the touch?

When charging your electrical device, the myFC PowerTrek may become warm. This is normal and is due to the heat produced by the myFC PowerTrek Puck. After the process is completed you simply leave it to cool off for a while before removing the used Puck.

What safety precautions are there for the MyFC PowerTrek?

The myFC PowerTrek contains a Lithium Polymer battery (5.6 Wh), referred to as the Internal Battery. Use only the prescribed method to charge the Internal Battery, never try to use any other charging method.

Avoid contact with contents. Contents are corrosive, toxic and flammable. DO NOT disassemble, pierce or subject your myFC PowerTrek to shock.

Content may contain flammable gas.

Use only with the myFC certified myFC PowerTrek Puck.

What safety precautions are necessary for the Puck?

During operation the myFC PowerTrek Puck may be very hot. DO NOT touch the Puck with your bare hands during operation or directly after use. If you drop the Mobile Charger during operation and the Puck falls out, make sure it is not too hot before touching it.

The myFC PowerTrek Puck is a SINGLE USE unit and SHOULD NOT be reused. Once a Puck has been inserted it is considered as used.

NEVER restart your myFC PowerTrek with a used Puck.

5. Environment

Is myFC PowerTrek environmental friendly?

Yes, myFC PowerTrek is a green energy solution that makes green energy instantly available everywhere to everyone.

Are there harmful by-products?

No, the by-products from the chemical reaction are sodium silicate, the main ingredient in toothpaste and detergent, and sodium metaborate (a derivative of borax), a material that is commonly used in the production of soaps, detergents and cosmetics.

How do I dispose of the used Pucks?

The Pucks are to be treated as metal (or household) waste or in accordance with the recycling regulations in your local country.

What do I do with the myFC PowerTrek if it is no longer working?

Please recycle your PowerTrek where you recycle your other electronic devices.

