

## **THE BRAND MADE BY JAPAN'S MOST EXPERIENCED WATCH MAKER**

New SPRON battery

### **High Quality**

We have succeeded in realizing better leakage resistance and storage stability than the existing non mercury-free silver oxide battery by developing and applying the technology of making ultra precise small-size parts, which we have cultivated for years through watches, into the highly-accurate surface process technology for the negative collector. This technology is the key technology in developing the mercury-free silver oxide battery. Production will be done by state-of-the art production equipment in the newly built high-tech plant. The production equipment has been placed into the clean room, which is the same manufacturing environment as ultra precise electronic devices, thoroughly eliminating contamination and producing mercury-free silver oxide batteries with minimum quality deviation.

### **Advanced Technology**

Up to now, a small amount of mercury was included in the silver oxide battery. Mercury amalgamates with zinc, which is the substance in the anode can. This suppresses the eruption of hydrogen gas, which occurs by the corrosion of zinc. If the hydrogen gas erupts, leakage resistance and storage stability will descent and at times, the battery will swell. We developed 3 new technologies in order to overcome the problem of removing mercury from silver oxide battery:

1. Multi-anti-corrosion treatment of the collector surface of anode can.
2. Use of high-corrosion resistant zinc alloy.
3. Addition of high-performance inhibitor in the electrolyte.

### **Mercury-free & Lead-free**

According to the EU battery directive, the marketing of alkaline manganese batteries containing more than 0.025% of mercury by weight is prohibited. This is because mercury has hazardous effect on the human health and environment. However, button cells have been exempted from this prohibition because it has been technically difficult for battery manufacturers to develop silver oxide battery without mercury. We have overcome this difficulty with our new SPRON battery.

Furthermore, gradual reduction and separate disposal of batteries containing more than 0.4% lead by weight was one of the objectives held by the member states of EU. These objectives have also been achieved by SII.