



# INSTRUCTION FOR USE RecPlug 1&2

	<p><b>Follow instructions</b> Pay attention to the operation instruction and fix them close to the battery.</p>		<p><b>Chemical hazard</b> Risk of chemical burns by the electrolyte Sulfuric acid can cause blindness or severe burns. Flush eyes and affected body parts with water. Get medical help fast.</p>
	<p><b>Use protective clothes</b> Use protective glasses and clothes when working on batteries. Pay attention to the accident prevention rules as well as EN 50272-3 and EN 50110-1.</p>		<p><b>Ignition hazard</b> Risk of explosion or fire No smoking, open flames, sparks and electrostatic discharges near the battery. Do not use dry rags or feather dusters for cleaning.</p>
	<p><b>Specialty equipment</b> Work on batteries to be carried out by skilled personnel only!</p>		<p><b>Case crazing hazard</b> Risk of battery case damage by chemicals Do not use chemicals, sprays or similar to clean the battery. Use water damp cloth only.</p>
	<p><b>Electrical hazard</b> Dangerous electrical voltage!</p>		<p><b>Warning</b> Acid splashes in the eyes or on the skin must be washed with water. In case of accident consult a doctor immediately! Clothing contaminated by acid should be washed in water.</p>
	<p><b>Risk of fire, explosion, or burns</b> Do not disassemble, heat above 60°C, or incinerate. Avoid any short circuit. Metallic parts under voltage on the battery, do not place tools or items on top of the battery</p>		<p><b>Environmental hazard</b> Risk of lead contamination. Dispose spent batteries properly with the help of your supplier. Do not throw them into garbage.</p>
<p><b>Ignoring the operation instructions, repair with non-original parts or using additives for the electrolyte will render the warranty void.</b></p>			



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## 1. Commissioning.

Upon receiving a shipment, it is advisable to open the shipping containers and carefully check the battery and hardware against the packing list. The contents of each consignment are carefully inspected by BATER before shipment. Any damage must be reported immediately to the carrier and the damaged items retained for inspection by the carrier's representative. Before installation of recombination plug remove transportation plug from the cells.

## 2. Operation.

Adventitious processes of decomposition of water included in electrolyte to oxygen and hydrogen are running during charging the chemical sources of current. Those gases released to atmosphere cause risk of explosion. As the result of the loss of water in electrolyte it is periodical requirement of fulfilling demineralized water. Classical lead acid cells can be equipped with recombination plugs to eliminate such effects. The plug recombine water from oxygen and hydrogen formed during charging of chemical sources of current, manufactured by BATER consists of casing equipped with recombination device inside. Cylinder recombination device is filled by catalytic and absorption deposit inside. The ventilation requirements may be distinctly reduced in accordance with EN 50272-2.

### 2.1. Charging.

Only IU characteristic in accordance with DIN 41773-1 are permitted.

Recombination reaction of hydrogen and oxygen is exothermic reaction. During work of plug heat is evolved, its quantity depends on intensity of cell gassing. Limits in exploit of plugs until 2.4V/cell  $\pm 1\%$  do not exist.

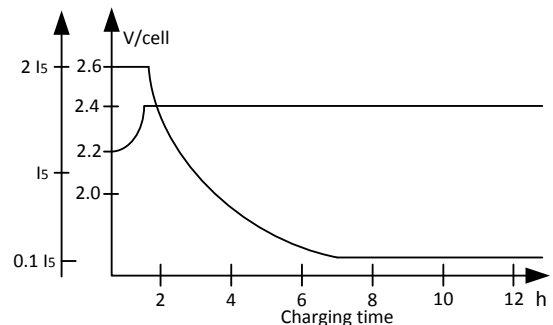
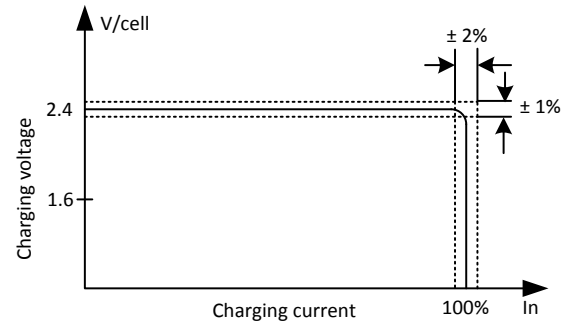
Boost and equalizing charging with recombination plugs should be provided with voltage not higher than 2.4  $\pm 1\%$  V/cell.

**With higher voltage (above 2.42 V/cell) the plugs should be unscrewed and remove from the cells before boost charging.**

**Unscrewing and removing plugs during charging and less than 12h after charging are forbidden.**

## Charging characteristic

### IU characteristic



## 3. Temperature.

**During charging surface of the plug is hot. Don't touch!**

## 4. Maintenance.

During battery maintenance check recombination plug. Water vapors must condense inside plug and recombination plug must be warm.

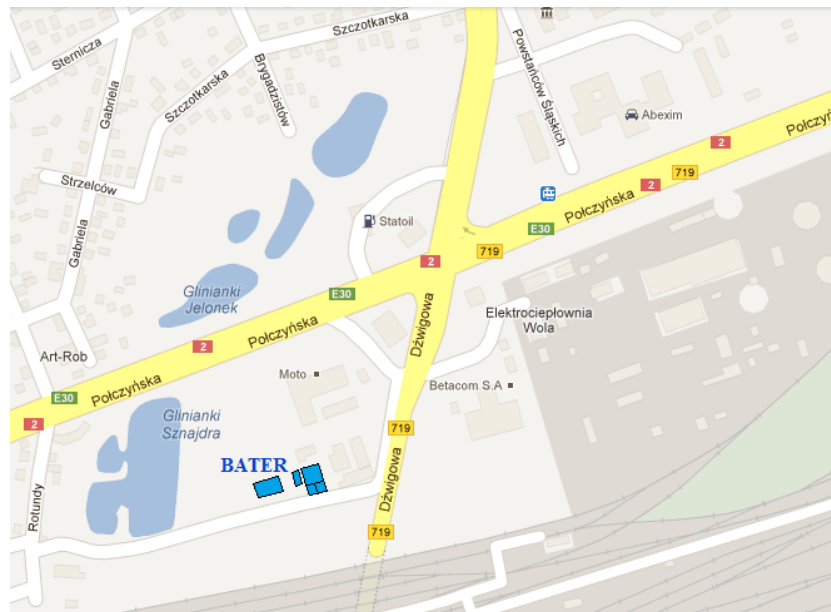
Under normal battery operation, there is no need to replace recombination plug throughout the life of the battery.

## 5. Malfunctions.

If malfunctions are found on recombination plug should be called to BATER-service without delay.



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## Head quarter

### **BATER sp.z o.o.**

ul. Dźwigowa 63,  
01-376 Warszawa  
tel.: +48 22 664 87 87  
fax: +48 22 664 87 87  
e-mail: [biuro@bater.pl](mailto:biuro@bater.pl)  
[www.bater.pl](http://www.bater.pl)

## Mechanical factory

ul. Dźwigowa 63,  
01-376 Warszawa  
tel.: +48 22 664 87 87 w.41  
fax: +48 22 664 87 87  
GPS 52°13.07N, 20°54.86E



## Battery factory Bater Gliwice

ul. Psczyńska 309,  
44-100 Gliwice  
tel.: +48 32 232 12 40  
fax: +48 32 232 12 40 w. 29  
e-mail: [biuro@bater.pl](mailto:biuro@bater.pl)  
GPS 50°16.14N, 18°43.19E