

The modifier “Omega”

(A patent of Ukraine and Eurasian patent)

The modifier “Omega” belongs to discoveries in the field of energy conservation. It changes completely the conception of chemical processes of current formation in lead-acid batteries.



General characteristics:

- The modifier “Omega” changes the chemical reaction the electricity generation process, **so completely excluded the formation of the dielectric salt – the lead sulfate (sulfation of the battery plates)**. As a result, there is no deterioration in the percolation of electrochemical processes and no deterioration energy characteristics of the battery (especially when starting the engine), that result from sulfation.
- In the process of battery exploitation, the active material on the grids positive plates “cemented” by the conductive ions, thus getting higher adhesion.
- The lifetime of battery plates is many times prolonged (in the absence of defects and if the recommendations for usage of the modifier are observed).
- If the electric wear and tear of the battery (natural decrease in the electrical characteristics) down to 30%, the usage of the modifier leads to recovery of initial characteristics of the battery.

Electrotechnical characteristics:

1. The quantity of electrically conducting ions which take part in the current formation is doubled which causes an increase of EMF and battery capacity.
2. The electrolyte does not boil away because the battery can take an increased charge voltage (up to 15.6 V).
3. The number of “deep discharge” cycles is many times increased (standard number of cycles equal to about 200–300).
4. The increase of EMF and capacity facilitates the start of an engine at low temperatures due to increase of rotational moment (diesel engine) and increase of power supply to the plug (petrol engine). The quick engine start reduces the deterioration of the piston system (70% of the engine deterioration is due to the moment of start) because of the long-term movement of pistons without normal oil pressure.
5. Time needed for charge recovery is twice or thrice reduced which is especially necessary for short trips and during the dark part of the day due to the increased power consumption.
6. The usage of the modifier stops all destructive processes, which influence the longevity of the battery exploitation.

Key effects to the consumer:

1. Increase battery life (due to eliminating of sulfation and by increasing the number of cycles of the “charge-discharge” in 3–4 times).
2. Increase the amp-hour capacity of a battery (due to increase the active surface of the plates of the electrodes). ^[1]
3. Increase the cold cranking amperes (CCA) of a battery (due to reducing the internal resistance of the battery and increase the active surface of the plates). ^[1]
4. Improve battery performance at low temperatures (due to reducing the internal resistance of the battery, increase the amp-hour capacity and the cold cranking amperes).
5. Improve battery performance at high temperatures (due to eliminating sulfation).
6. Reduce time of a charge of the battery (due to the ability to take an increased charge voltage).
7. Reduce of gas evolution during battery charge (due to the ability to take an increased charge voltage).
8. Increase the storage battery time without additional periodic recharging (due to reducing self-discharge).

Additional effects:

1. Reduce the cell (plates) formation time (for the manufacturers of batteries).
2. Reduce the shedding of the active material from the positive plates due to increasing strength of active material and increased adhesion of active material to the grids of positive plates. ^[2]
3. Full recovery the battery performance after a deep discharge (even in “zero”).

Notes:

¹ Modifier "Omega" is also raising agent, increasing the active surface of the plates, which can significantly improve the electrical characteristics of the battery.

² Modifier "Omega" increased the adhesion of active material to the grids of positive plates (electrodes) and creates on the surface of positive electrode the polymer frame, having a good electrical conductivity and permeable to the electrolyte. This polymer frame strengthens the active material and prevents it from shedding.

Modifier "Omega" is applied only once – in the electrolyte (during charging the battery), or added to the active material for the positive electrode in the cell (plates) formation process (for the manufacturer of batteries).

Figure 1. Battery cranking test

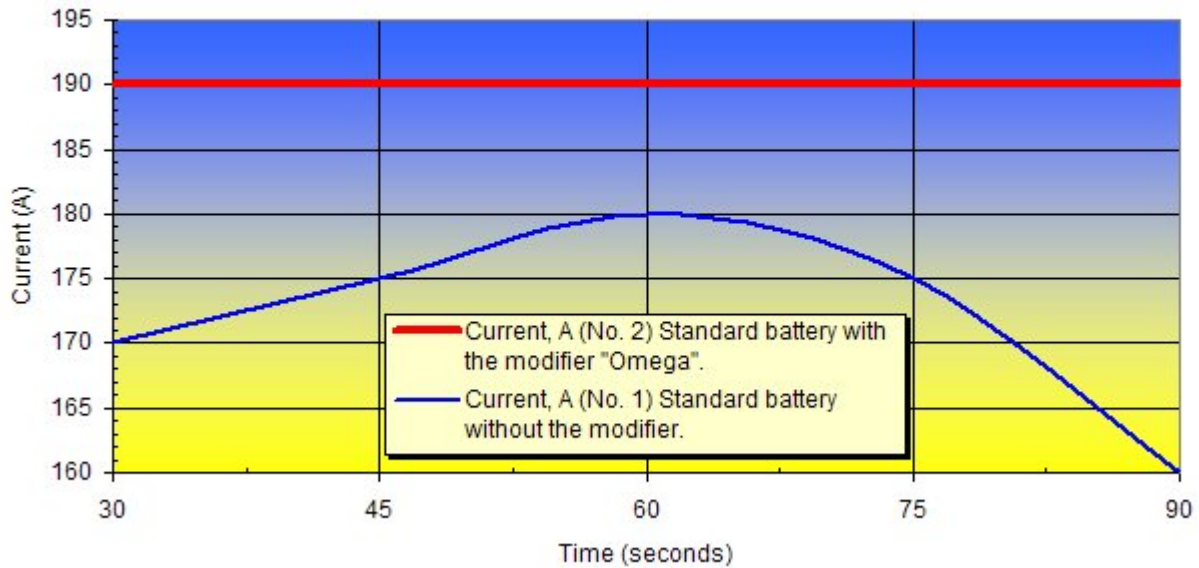


Figure 2. Battery deep cycle test

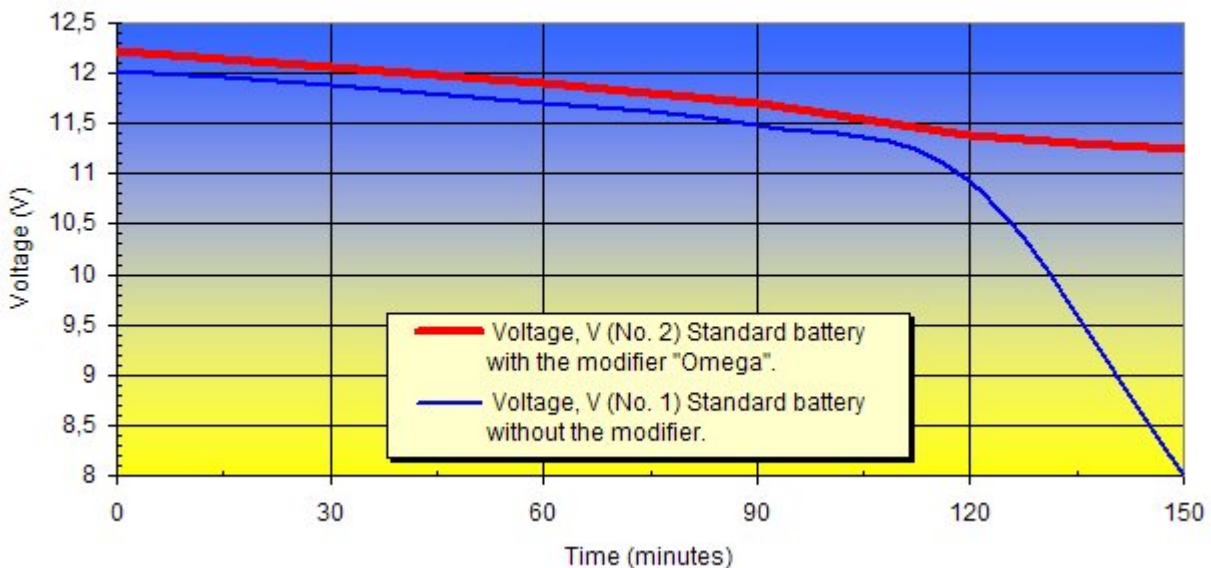
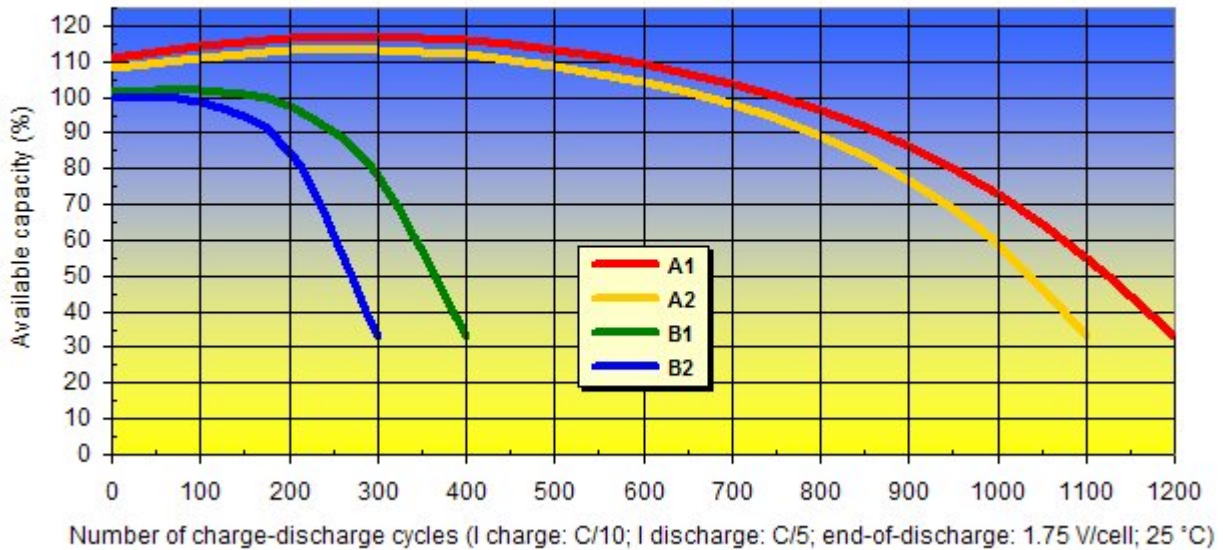


Figure 3. Available battery capacity, depending on the number of charge-discharge cycles



On the figure:

- Batteries Group A (A1, A2) – Standard battery with the modifier “Omega”.
- Batteries Group B (B1, B2) – Standard battery without modifier.

Properties:

Heavy (density 1.28 g/cm³) oily light-yellow liquid with a weak alkaline reaction, containing elements of know-how.

Application method:

1. Remove the battery vent plugs and check the electrolyte level. Minimum level should be at least 12-15 mm above the plates. If necessary, add water to bring the electrolyte to the proper level in all cells.
2. Check the specific gravity and state of the electrolyte. **The electrolyte must be clear, without brown drains. The specific gravity of the electrolyte before adding the modifier should not be less than 1.25 g/cm³ (at 77°F/25°C).** In case of low specific gravity, bring it to 1.25 g/cm³ by charging the battery via charger or generator (by car).
3. Connect the batteries to the charger (or start the engine at 1200-1500 rpm – to reach the charge voltage). **The modifier adds immediately after the start charge (after applying charge current).**
4. Using the table, calculate the required amount of the modifier for the appropriate battery ampere-hour capacity:

Ampere-hour Capacity (Ah) ^[*]	Amount of the modifier for a 12 V (6-cell) battery (ml)	Amount of the modifier for each cell (ml)
44...45	36	6
50...66	48	8
70...75	60	10
80	66	11
90...92	72	12
100...110	84	14
132...140	96	16
160	120	20
190	138	23
210...215	150	25
225	162	27

Note:

* If the battery capacity is not in the table above, calculate the necessary amount of modifier can be one of the following ways:

1. If a known volume of the electrolyte, use 12 ml of the modifier per 1 liter of electrolyte.
2. If the volume of the electrolyte is unknown, use a 0.133 ml of the modifier per 1 Ah amp-hour capacity – per one cell (for capacities up to 100 Ah incl.), and 0.12 ml of the modifier per 1 Ah amp-hour capacity – per one cell (for capacities more than 100 Ah).

When receiving of a fractional number, the result is rounded up to the nearest whole number (milliliters).

5. While observing safety measures add the recommended amount of modifier necessary for specific battery capacity using a measuring cap.
In some cases, when adding a modifier may be a short-term boiling of the electrolyte, which is a sign of sulfation plates.
6. Charge the battery for at least 30 minutes. To get the maximum effect (full completion of the reaction) need to make a full stationary charge the battery (see step No. 7 below).
7. Because of the reduction of internal resistance of the battery after the usage of modifier, the batteries can receive some additional charge during 4–6 hours with nominal charging current (usually 5% of the battery amp-hour capacity, or C/20 rate).

Additional recommendations on the use of the modifier "Omega" (including the batteries are already in use) in PDF format can be downloaded from the following link:

http://ntb.com.ua/misc/Omega/Modifier_Omega_Recommendations_English.pdf

Safety measures:

When adding a modifier to the electrolyte chemical reaction occurs with the possible short-term boiling electrolyte.

Recommended add the modifier using rubber gloves. In case it gets on the skin, wash it with water and 5% solution of acetic or lemon acid. In case it gets in the eye, wash with water and call the doctor. In case of swallowing, call the doctor immediately.

Keep out of the reach of children.

Recommendation:

1. Recommended to use the modifier for new batteries or for batteries with low deterioration percent to get maximum results (it is impossible to renew very much sulfated or destroyed plates).
2. Recommended to use the modifier for batteries with fair wear and tear of the battery (natural decrease in the electrical characteristics) 0–30%.
3. The voltage of the automobile generator should correspond to the Standard and amount to 13.8–14.4 V.
4. The power consumption of the automobile electrical equipment in the stop mode should not exceed 0.1 amps.
5. Keep the outer surface of the battery clean (to avoid self-discharge due to leakage currents arising in significant contamination of the battery).
6. Disconnect the minus wire of the battery in case of a long-term stop.
7. Make stationary charging of the battery from time to time (at least once in 6 months) (in case of incomplete charge of the battery in the automobile).

Retail packaging:

Plastic bottles 50 ml, 100 ml, 500 ml.

Frequently asked questions:

1. **Q:** How much time does the modifier prolong the life of the starter battery?
A: Till 10–12 years. Or (depending on a mode of use of the battery) – up to 2–3 times.

For example, the starter battery 1996 issue and immediately treated with the modifier "Omega", is still working on the car's of the inventor of the modifier "Omega" (already **more 18 years**).
2. **Q:** After how much time do you have to repeat the use of the modifier?
A: The modifier "Omega" **added only 1 time**.
3. **Q:** Do you have any actual test results?
A: Actual tests are having, but they in Russian:
<http://ntb.com.ua/goods/omega/adulteress/>

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