

 **ATTENTION** 

- Battery acid contains sulfuric acid, which is corrosive and can cause severe burns.
- Please ensure that you follow the individual battery manufacturer's guidance when working on, testing, or handling batteries of any type.
- Always ensure that you use appropriate personal protective equipment (PPE) when working with any battery.
- Batteries can produce explosive gases. Always work in a well ventilated area. Do not work near open flames. Avoid any action that may cause sparking.
- Do not take internally. If swallowed, do not induce vomiting. Contact a local poison control center immediately.
- Keep out of reach of children.
- Never use a metal container for storing or transferring electrolyte.
- Do not let De-Sulfater liquid come in contact with metal—this could neutralize the product, rendering it ineffective.
- This product is non-hazardous.

EQUIPMENT NEEDED

- Appropriate personal protective equipment (PPE)
- Battery hydrometer
- Medium to large sealable glass or plastic container (for electrolyte storage or disposal)
- Scissors or utility knife

ADDITIONAL INFORMATION

For detailed product information, material safety data sheet (MSDS), additional safety information, further usage instructions, including step-by-step instructional videos showing how to properly treat your battery, or additional questions about how this product works, visit our website:

www.thermoil.com

For all questions relating to sales, safety, or company information, contact:

Terry Fellner, President

Email tfellner@thermoil.com

Phone 1 (920) 749-9712

Monday - Friday, 8:00 AM - 5:00 PM

PLEASE NOTE: If your 12-volt battery is below 11 volts, 8-volt below 7 volts or your 6-volt battery below 5 volts **THEN YOU MUST REPLACE THE BATTERY BECAUSE YOU HAVE A DEAD CELL.**

TREATING YOUR BATTERY WITH BATTERY DE-SULFATER

For technical information on how to **De-Sulfate & Equalize** your battery, visit www.thermoil.com, and click on "**De-Sulfator Equalization Instructions**".

1. Fully and properly charge battery to be treated, following manufacturer guidelines. Ensure that each cell has proper fluid level prior to charging.
 2. **Check state-of-charge (SOC) using a battery hydrometer or volt meter.**
If results indicate a SOC at or above **25%**, proceed treating with Battery De-Sulfater to attempt recovery. **See VOLTAGE & SPECIFIC GRAVITY Chart on the Thermoil website: www.thermoil.com**
NOTE: If your results do not indicate at least a 25% SOC, success of recovery using Battery De-Sulfater is not guaranteed.
 3. Remove vent tube caps.
 4. Using a battery hydrometer, remove electrolyte from each cell to just above battery plates. Place extracted electrolyte in glass or plastic container. (DO NOT USE A METAL CONTAINER.)
 5. **IMPORTANT: Shake bottle of Battery De-Sulfater well.**
Remove seal and cut tip of bottle.
 6. Add proper amount of Battery De-Sulfater to each cell, using volume measurements on side of bottle. To find or determine proper quantity of Battery De-Sulfater to add, refer to quantity chart or instructions at right.
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- CAUTION:** Adding too much Battery De-Sulfater may raise the voltage, possibly resulting in damage to your battery.
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- CAUTION:** Avoid contact with metal as this could neutralize the chemical.
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7. Refill each battery cell with reserved electrolyte, to bring overall fluid level to about 1/8 inch below the vent tube well.
 8. Replace vent tube caps.
 9. Charge battery at a very slow rate the first few times, so as not to let the battery heat up which could warp the battery plates. If battery begins to get warm to the touch, stop charging, let cool, then discharge and slow charge battery again. Charge and discharge the battery three (3) to seven (7) additional times for maximum sulfation removal.

- Store any remaining electrolyte in a sealed glass or plastic container (e.g., an empty Battery De-Sulfater bottle), or dispose of properly.
- Check fluid levels regularly. If level is low, add the reserved electrolyte or distilled water to restore proper fluid level. (To preserve proper battery chemistry, use only electrolyte removed during the treating process.)
- To ensure performance and longevity of your restored battery, consider treating with Thermoil® Battery De-Mister®.

DEEP CYCLE BATTERY QUANTITY CHART

The solution of Battery De-Sulfater and electrolyte in each cell must be at a specific concentration to work properly. Below are pre-calculated values for many common deep cycle battery models.

NOTE: The values and formula provided below refer to deep cycle batteries and should not be used for other battery types.

CAUTION: Starting batteries have thinner plates than deep cycle batteries. If you are treating a starting battery, use at least 1/3 less than the amount calculated or shown in the chart below for your specific starting battery model.

Deep Cycle Battery Model	Battery De-Sulfater Volume (per cell)
Aerial Lift & Golf Car	
6-volt	2.0 oz. per cell
8-volt	1.5 oz. per cell
12-volt	1.5 oz. per cell
Industrial	
J185	1.5 oz. per cell
J250-J305	2.0 oz. per cell
L-16	3.0 oz. per cell
4D	2.0 oz. per cell
8D	2.5 oz. per cell
6TN-6TL Military	1.0 oz. per cell
Marine & RV	
12-volt (Groups 24, 27 & 31)	1.0 oz. per cell

NOTE: If your specific battery type is not listed in the chart above, use the formula below to calculate the amount of Battery De-Sulfater to add to each cell of the battery.

Battery De-Sulfater Volume Calculation Formula

$$((w * 2.5) \div c) \div 30 = s$$

w = Weight of battery, in pounds

c = Number of cells in battery (e.g., 3, 6, 12, 18, 24)

s = Number of fluid ounces of Battery De-Sulfater to add to each cell

Multiply the weight of the battery (in pounds) by 2.5, then divide this number by the number of cells present in the battery (e.g., 3, 6, 12, 18, 24), then divide this number by 30. This is the amount of Battery De-Sulfater to add to each cell of a deep cycle battery. If treating a starting battery, use at least 1/3 less than the amount calculated.

After calculating the correct volumes, follow the instructions printed at left.