

LEAK STOP GEL COPPER SULFATE or ANTI-FREEZE CREATES SEMI PERMANENT ELECTRODES



4 Oz.
Copper Sulfate
17270



8 Oz.
Copper Sulfate
17280



4 Oz.
Anti-Freeze
17240



8 Oz.
Anti-Freeze
17250



ADVANTAGES:

- Stops the leaking of Copper Sulfate electrodes
- Replaces leaky liquids with gel electrolyte
- Constituted from the highest purity Copper Sulfate Crystals
- Heat bottle in hot tap water, gel turns to liquid for easy filling of electrodes
- Cools at room temperature and forms semi-solid gel
- Retains the ability to maintain and calibrate your copper sulfate electrode

Operating Instructions for Leak Stop Gel

PURPOSE:

M. C. Miller Leak Stop Gel was developed for situations in which electrodes may leak copper-sulfate solution in a quantity which is unacceptable. This often arises when an electrode is stored in a vehicle where the heating and cooling of night and day expands and contracts the copper-sulfate liquid, forcing it through the ceramic plug. This leaves a messy residue of copper-sulfate crystals behind. This situation of unwanted leaking electrodes is greatly reduced or eliminated when Leak Stop Gel is used. The gel is too thick to be forced out the end of the electrode during normal heating and cooling cycles, preventing the leakage from occurring.

PREPARATION FOR USE:

1. Make sure the cap on the Leak Stop Bottle is on tightly.
2. Place the bottle of Leak Stop Gel into a pan or deep dish.
3. Run hot tap water of 110° into the pan or dish submerging the bottle of Leak Stop Gel.
4. Turn off hot tap water.
5. Let submerged bottle remain in hot water for 10 minutes.
6. Every 5 minutes run hot water again until no clumps of gel remain.
7. If no gel is observed and only liquid is present the liquefaction process is complete.
8. Remove top rod assembly from the copper-sulfate electrode.
9. Pour Leak Stop into copper-sulfate electrode to a level one inch below the top.
10. Replace and tighten rod assembly.
11. Set electrode upright in a cup. (ceramic tip down)
12. Let cool for one hour or until Leak Stop has completely become a gel.

Leak Stop is a saturated CuSO_4 solution. If it is desirable to verify that the solution is saturated, a few (half a teaspoon) copper-sulfate crystals may be added. This can be done immediately after Leak Stop has been added to the electrode but before hardening has started. With this done there will always be crystals visible to insure a saturated copper-sulfate solution.

REMOVING GEL FROM ELECTRODE:

Replace the gel once the electrode has become used, contaminated, cloudy or varies from freshly prepared standard by 15 MV. Internal company guidelines may dictate a different millivolt variance. The Miller Leak Stop Gel behaves like a copper-sulfate electrode filled with deionized water. After time and repeated use the electrode may become contaminated. When this occurs the gel must be removed and the electrode cleaned to a bright shiny state. To remove the gel, run hot water into a bowl and submerge the electrode for 10 - 15 minutes. The Leak Stop Gel will liquefy.

The liquid Leak Stop Gel may be discarded using proper disposal methods. Rinse out the electrode tube and remove the copper

element. With the rod removed it can be sanded with brown sand paper to remove oxidation. Rinse thoroughly with deionized water and reassemble. The electrode can be refilled with Leak Stop Gel as outlined above.

NOTE: Leak Stop is a gel and therefore does not soak through the ceramic tip as much as a normal copper-sulfate solution. The side effect of this gain is that the ceramic tip when used in a very arid condition may dry out. This problem is easily overcome by submerging the ceramic tip of the electrode into a cup of tap water for 5 seconds. This will re-wet the tip and the electrode will work as desired.

SPECIFICATIONS:

The Leak Stop Gel - Copper Sulfate is very accurate when compared to a freshly made standard copper-sulfate electrode made from high purity crystals and deionized water. The variance can be expected to be within ± 2 millivolts from a standard at the same temperature.

The Leak Stop Gel - Anti-Freeze is very accurate when compared to a freshly made standard copper-sulfate electrode made from high purity crystals and deionized water. The variance can be expected to be within 1 millivolt at 32°F from the standard at room temperature (72°F).

At a temperature of 10°F (-12°C) Copper Sulfate Leak Stop Gel freezes to crystalline solid.

At a temperature of -40°F (-40°C) Anti-Freeze Gel freezes to a crystalline solid.

Transition temperature from a liquid to an amorphous gel occurs at 10°F (43°C).

Each 4 Oz. bottle of MCM Leak Stop Gel contains enough gel to fill two RE-5 electrodes.

The 8 Oz. bottle of Leak Stop Gel will fill one RE-3A electrode.

STATEMENT OF HAZARDS: Harmful if swallowed. Causes eye irritation. Causes respiratory tract and skin irritation. May cause blood disorders, convulsions or affect the kidney.

NFPA RATINGS (SCALE 0-4); Health=3 Fire=1, Reactivity=0

A Material Safety Data Sheet may be obtained from M. C. Miller Co., Inc. by calling 1-772-794-9448.

PRECAUTIONARY STATEMENTS: Do not get in eyes, or on clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Handle with caution.

FIRST AID: Remove from exposure area. Flush skin/eyes with water for 15 minutes. If vomiting occurs, keep head below hips to prevent aspiration. Get medical attention immediately. See MSDS for further recommendations.

EXPOSURE LIMITS: This substance regulated by OSHA and or ACHIH.



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