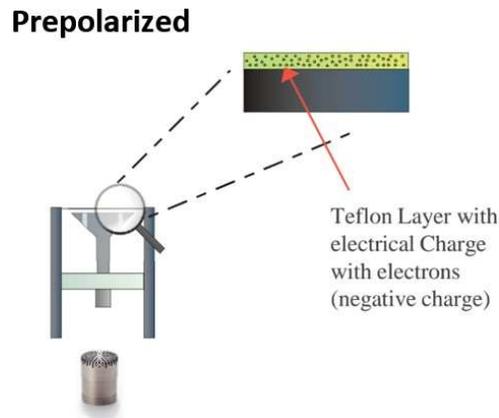


## Are Prepolarized microphones a bad choice for high temperature operation?

Prepolarized microphones have a thin layer of electrically charged material on its backplate. The electrons in this material will provide the polarization voltage needed by the plate capacitor to work.



*Figure 1. Electrically charged material on the backplate of a Prepolarized microphone capsule.*

Depending on the characteristics of the material used, exposure of the capsule to temperatures above 80°C (176°F) for a long period of time, can start degrading the material and allowing electrons to escape the backplate. When this happens, the microphone sensitivity will start falling until the sensitivity is completely lost. The duration of this process will change depending on the microphone, the temperature and the exposure time. Going from hours and up to years. This sensitivity loss is permanent and can't be recovered without a microphone repair.

If I can't avoid exposing my prepolarized microphone to high temperatures (that can cause permanent sensitivity loss), but I closely monitor the sensitivity change and compensate for it, I can still use that microphone without any issues.

GRAS offers a line of ruggedized microphones that will work with CCP/IEPE/ICP/CCLD supply and can be exposed to temperatures up to 125°C (257°F) WITHOUT permanent sensitivity loss. Check for GRAS [146AE](#), [147AX](#) and [147EB](#).