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Number 4

# APPLICATION NOTE

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## Use of Stabilant 22a on Microphone Connectors

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- *Background:*

Microphone connector problems of the type such as breakage at the soldered joints between the microphone cable and the pin or socket extensions have overshadowed many of the other problems inherent in any connector carrying a low-level signal. These include microphonics in the connector itself as well as degradation of the signal to noise ratio, both of which are caused by erratic contacts. Almost totally neglected has been the effect of thin film contamination on the total harmonic distortion of the audio signal, including the tendency of this distortion to lie in the more easily audible high-order harmonics.

Some manufacturers have resorted to the use of gold-plated contact-means, in order to ensure reliable contacts; however this by itself has almost no effect on thin-film contamination.

- *Apparent action of thin-film contaminants:*

As an alternating current signal voltage passes through the zero voltage state, current ceases to flow (we're assuming a purely resistive load here); if a thin film of contamination is present, current may not start to flow again until sufficient voltage has built up across the contaminant so as to break it down. The result is a small notch in the signal, which in sound, is not dissimilar to the notch distortion of a class B power amplifier. The characteristic sound ranges from a "grainy" quality up to a harsh "glassy brilliant" coloration.

- *The use of Stabilant 22/22a:*

By applying a thin coating of either **Stabilant 22** or **Stabilant 22a** to the contacts in an XLR or equivalent connector, these thin film distortion effects can be eliminated along with most cases of connector microphonics and signal-to-noise degradation. Where fanning strips are used to pick up the signal lines from remotely located microphone jacks, the fanning strips should also be treated with Stabilant. This also extends to any edge-card or other connectors used to connect the fanning strip lines to the individual input modules.

- *Results to be expected:*

It is suggested that only one mike channel be treated initially and compared with an untreated mike channel. All connections from switches to IC sockets as well as the input connector should be treated! The difference is usually audible as a smoother, more musical sound on the treated channel.

- *Precautions:*

**Do not** treat condenser microphone capsules with the **Stabilant** materials in such a way that any of the material gets on the insulator between the back and diaphragm electrode connections. The resistance between the back electrode and diaphragm electrode must be maintained at extremely high values; **Stabilant** across the insulation would lower this enough to render the capsule useless! However, **Stabilant** may be used on the XLR or equivalent connectors without concern, if and when it gets on the connector insulation. There the leakage resistance will stay so high as to be ignored.

- *Reference:*

Reference is made to Technical Note Number 24 "Effects of Stabilant 22 on Harmonic Distortion in Connectors".

NATO Supply Code 38948 - 15 mL of S22A has NATO Part # 5999-21-900-6937

The **Stabilants** are patented in Canada - 1987; US Patent number 4696832. World-wide patents applied for. Because the patents cover contacts treated with the material, a Point-of-sale License is granted with each sale of the material.

**MATERIAL SAFETY DATA SHEETS ARE AVAILABLE ON REQUEST**

NOTICE

This Application Note is based on customer-supplied information, and D.W. Electrochemicals Ltd. is publishing it for information purposes only. In the event of a conflict between the instructions supplied by the manufacturer of the equipment on which the Stabilant material was used, and the service procedure employed by our customer, we recommend that the manufacturer of the equipment be contacted to make sure that their warranties will not be voided by the procedures herein. While to our knowledge the information is accurate, prospective users of the material should determine the suitability of the Stabilant materials for their application by running their own tests. Neither D.W. Electrochemicals Ltd., their distributors, or their dealers assume any responsibility or liability for damage to equipment and/or any consequent damages, howsoever caused, through the use of the information herein.

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