(Technical Advisory #31)

EEG Gel – Magnetic Contaminants

October 21, 2019

NOTE:
This advisory is being sent ONLY to CTF's primary user contacts; please ensure this advisory is forwarded to all users of your MEG system as you deem appropriate.

Affected Users

This advisory is applicable to all who perform EEG studies with CTF MEG systems.

Background

Many EEG gels contain magnetic contaminants that can introduce noise artifacts into MEG recordings. This issue was recently re-raised, thereby initiating further consideration. This advisory is to ensure all users are aware of this potential concern and to provide suggested solutions.

Advisory

Standard, commercially available, EEG gels should be expected to contain magnetic contaminants which can introduce artifacts into MEG data. To minimize such artifacts it is recommended that each user:

1. Uses an EEG gel that is specifically manufactured for use with MEG, and / or
2. Minimizes subject head movement during MEG collections.

Detailed Explanations:

1. MEG-Compatible EEG Gel:
   Because CTF offers EasyCap EEG caps with new CTF MEG systems, we received a sample of EasyCap's V18-NM 'Abralyt Light, electrolyte gel for MEG' and confirmed it to be magnetically clean. Similarly suitable gels may also be available from other suppliers (but at present this is all that we have tested).

2. Subject Head Motion:
   Subject head motion is always a concern for MEG studies and should always be minimized but if magnetic contaminants are present on the subject's scalp (e.g. from typical EEG gels) then subject head motion can induce highly localized signal artifacts into the MEG data. Within an MSR and with no subject motion, small magnetic contaminants are unlikely to affect MEG data.

Thank you to all who brought this to our attention.

Please contact us (support@ctfmeg.com) with any questions or concerns.

With best regards,

CTF Customer Support