

Table S1. Hazard statement for sulfolane.

Hazard symbol	Specification
GHS07	Acute toxicity (oral, dermal, inhalation), category 4 Skin irritation, category 2 Eye irritation, category 2 Skin sensitisation, category 1 Specific Target Organ Toxicity – Single exposure, category 3
H302	Harmful if swallowed
P301+ P312+ P330	If swallowed: Call a poison centre or doctor/physician if you feel unwell, rinse mouth.

Table S2. Description of recorded corrosion parameters [63].

Parameter	Definition
General corrosion rate (PV)	measurement of the real part of the Low Frequency Impedance (LFI) of the working electrode. SmartCET uses Linear Polarization Resistance (LPR) technique to calculate the General Corrosion Rate, that is usually the prime variable of interest, because it reflects the overall rate of metallic corrosion. Corrosion may be directly related to operational parameters, e.g., temperatures, flow, chemical composition.
Pitting Factor (PF)	ratio of the depth of the deepest pit (point or small area, that takes the form of cavities) resulting from corrosion divided by the average penetration as calculated from weight loss. It is a measure of the overall stability of the corrosion process obtained from a

	measurement of the intrinsic current noise of the working electrode and comparing this measurement to the general corrosion current obtained from the LPR measurement.
Dynamic B value	corrosion constant also known as the 'Stern-Geary constant'. It is an essential part of the corrosion rate calculation being directly proportional to the corrosion rate value. It represents a correction factor 'constant' determined by the mechanism/kinetics of the corrosion process. In a dynamic process the B value is not constant. The knowledge of the B value enables to refine the LPR-generated corrosion rate estimate, since the uncertainty regarding the standard (default) B value is removed. The B value is directly related to the mechanistic properties of the component anodic and cathodic corrosion processes.
Corrosion mechanism indicator (CMI)	The CMI is a qualitative indicator of a surface film presence. If there is no film and only corrosion is present, the CMI will have an intermediate value. Inorganic scale, or thick passive oxide films with little or no conductivity, will show a low CMI value.