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Surfactant and temperature effects on paraben transport through silicone membranes

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**Highlights**

- The presence of an anionic surfactant (sodium dodecyl sulphate), reduced the permeation of two model compounds, methylparaben and ethylparaben, through silicone membrane over a period of 24 hours.
- The degree of permeation reduction was proportional to the concentration of surfactant with a maximum effect observed at the highest surfactant concentration.
- Differences were seen around the critical micelle concentration (CMC) of SDS implying the effect was partially connected with the favoured formation of micelles.
- In contrast, the presence of a non-ionic surfactant (Brij 35) had no effect on the permeation of methylparaben or ethylparaben at any of the concentrations investigated, both above and below the CMC of the surfactant.

An increase in experimental temperature appeared to enhance permeation, a finding that is in agreement with previously reported data. Interestingly, in the majority of cases this effect was optimum at the second highest temperature studied (45 °C) which suggests that permeation is a temperature-dependent phenomenon.