

# **Temperature and frequency dependence on dielectric permittivity and electrical conductivity of recycled Liquid Crystals**

Ana Barrera <sup>a</sup>, Corinne Binet <sup>a</sup>, Frédéric Dubois <sup>b</sup>, Pierre-Alexandre Hébert <sup>c</sup>, Philippe Suptot <sup>a</sup>, Corinne Foissac <sup>a</sup> and Ulrich Maschke <sup>a,\*</sup>

<sup>a</sup> *Unité Matériaux et Transformations (UMET), UMR 8207, CNRS, INRAE, Centrale Lille, Université de Lille, 59000 Lille, France*

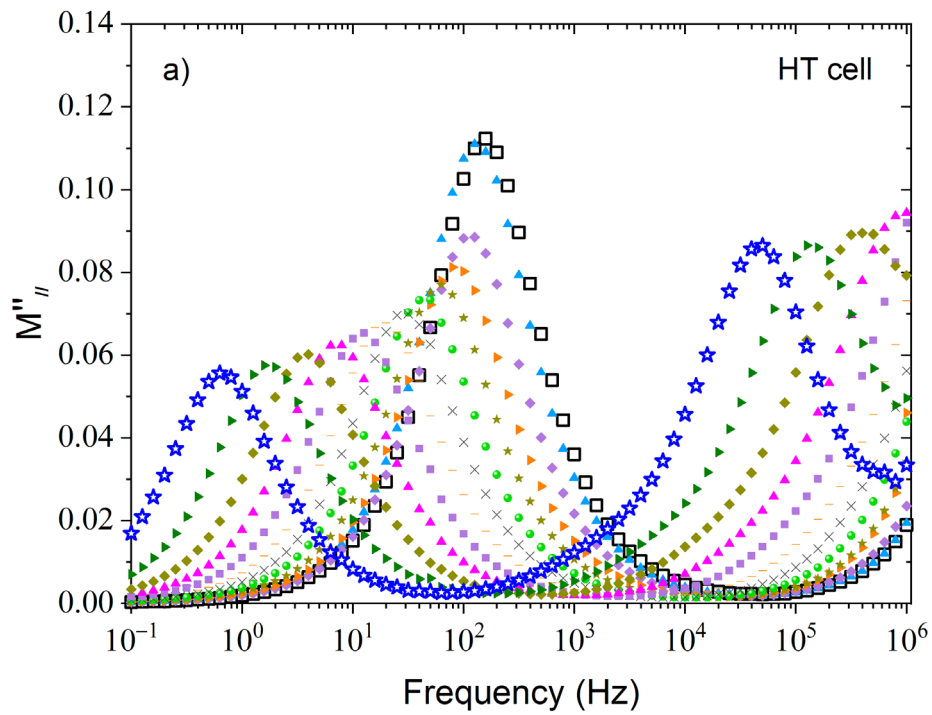
<sup>b</sup> *Unité de Dynamique et Structure des Matériaux Moléculaires (UDSMM), UR 4476, Université du Littoral Côte d'Opale, 62100 Calais, France*

<sup>c</sup> *Laboratoire d'Informatique Signal et Image de la Côte d'Opale (LISIC), UR 4491, Université du Littoral Côte d'Opale, 62100 Calais, France*

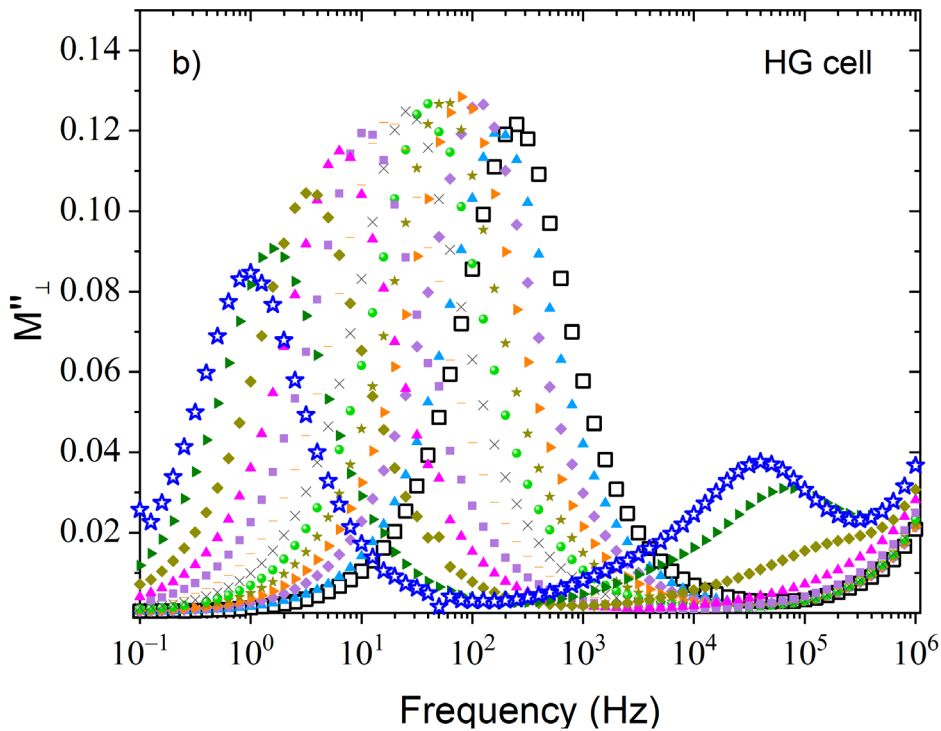
\*Corresponding author: E-mail address: [ulrich.maschke@univ-lille.fr](mailto:ulrich.maschke@univ-lille.fr)

## Supplementary material

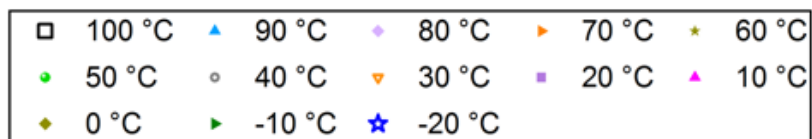
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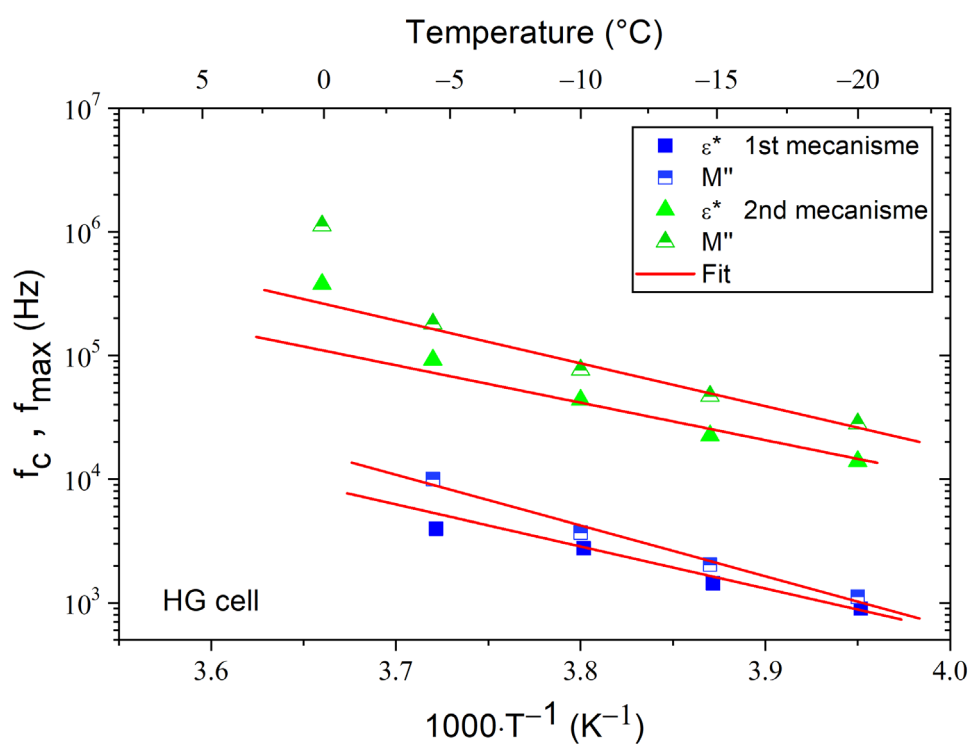
**Fig S1.** Dielectric spectra  $M''(f)$  of the recycled LC mixture in a) homeotropic and b) homogeneous alignments. The spectra were taken in a descending temperature range between 100 and -20 °C. A Debye peak appearing at low frequencies shifts towards higher frequencies with increasing temperature.

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**Fig. S2.** Arrhenius plot of characteristic frequencies and frequency evolution of the peak maxima of the mechanisms for recycled LC mixture in HG alignment obtained from  $\epsilon^*$  and  $M''$ . The experimental data and the fits to the Arrhenius model are represented by symbols and red solid lines, respectively (temperature ( $^{\circ}C$ ) as secondary X axis).

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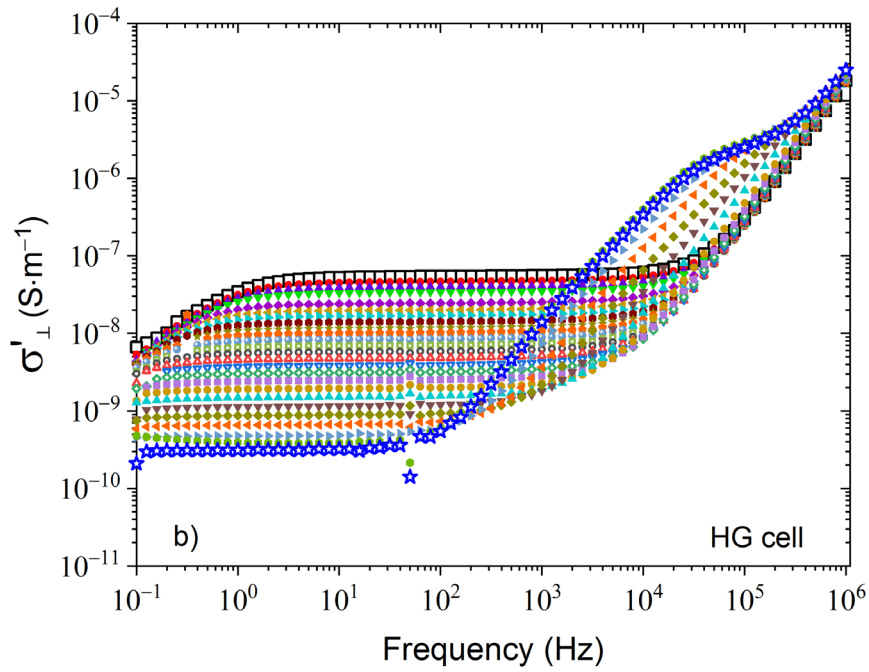
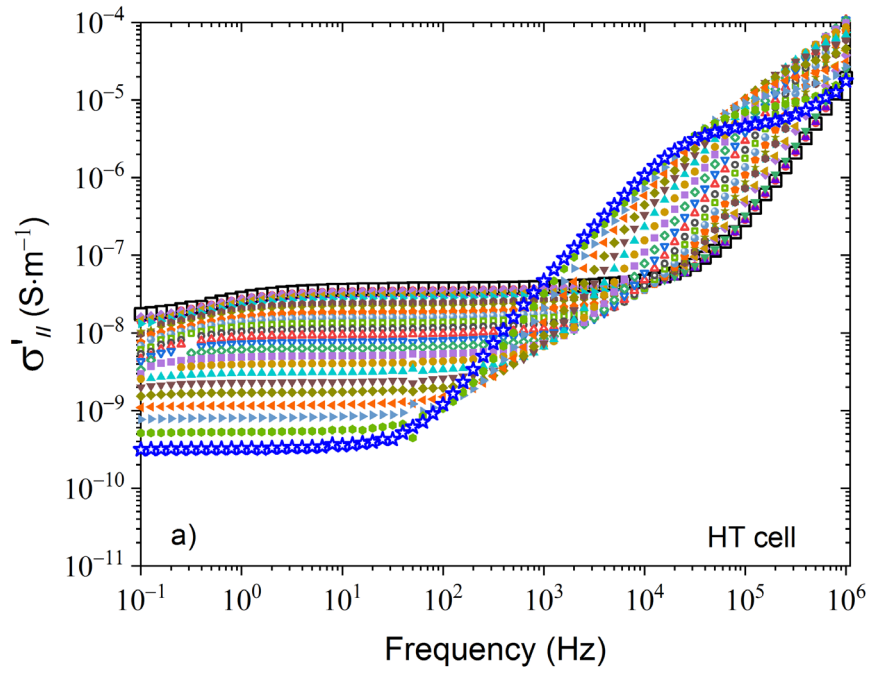
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**Fig. S3.** Conductivity spectra  $\sigma'(f)$  of the recycled LC mixture in a) HT and b) HG alignments from 100 to  $-20$  °C.

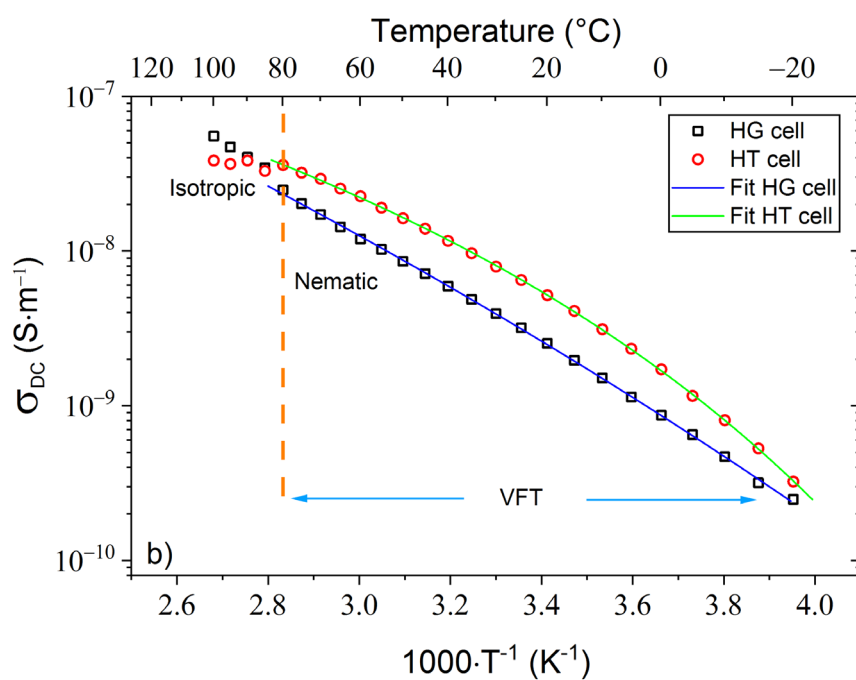
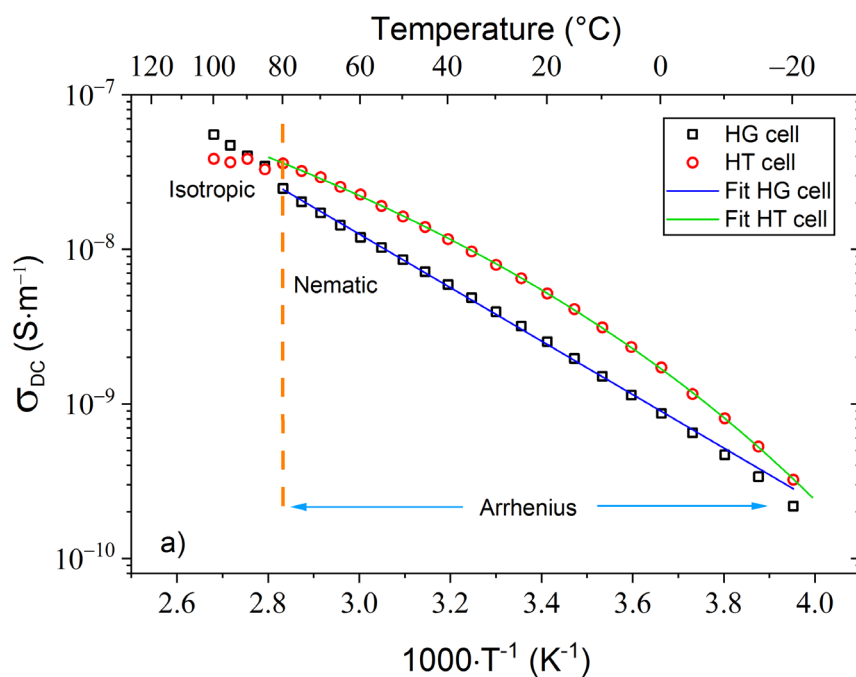
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**Fig. S4.** Arrhenius plot of the DC conductivity the recycled LC mixture in HT and HG alignments (temperature in °C as secondary X axis). The experimental data and the fits to VFT and Arrhenius models in nematic phase are represented by symbols and solid lines, respectively.