Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

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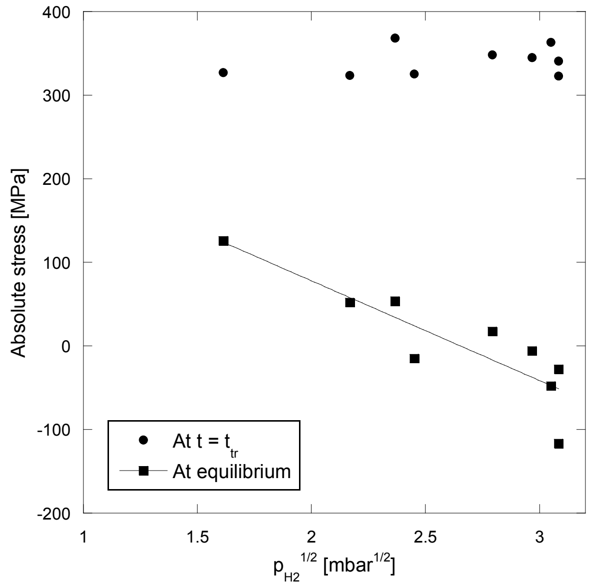
With respect to the absolute stress at the end of regime 1 (so at $t = t_{tr}$), the figure below confirms that these values are independent of p_{H2}. Our results therefore indicate that the H-concentration at the end of regime 1 is independent of p_{H2}, but that the time t_{tr} at which the transition to the second regime occurs is influenced by the hydrogen pressure (see Fig. 7 in this respect). The graph below also shows the equilibrium absolute stress value corresponding to the plateau at the end of the 3th regime, to show that the latter does show a clear trend, proportional to Sievert's constant (as already indicated in Fig. 4).



The figure belows explicitly shows the p_{H2}-dependence of I_σ. No clear trend can be observed in the p_{H2}-range considered in our study. That is the reason why we decided to rather mention its average value of 446 ± 27 MPa. The reason for I_σ apparently being independent of p_{H2} is that, while the slope in the second kinetic regime increases with p_{H2}, the time t_{tr} at which the transition between the two regimes occurs decreases with p_{H2}. Therefore, using an average value of I_σ is probably an approximation, but we believe that this is justified in the p_{H2}-range considered in our study.