

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Impurity Induced Cross-over from Continuous to First-order Nematic-to-Smectic A Phase Transitions in a Liquid Crystal. JAN THOEN, KATLEEN DENOLF, BERT VAN ROIE, CHRIST GLORIEUX, Lab. Akoestiek en Thermische Fysica, Dept. Natuurkunde en Sterrenkunde, Katholieke Universiteit Leuven, Celestijnenlaan 200 D, B-3001 Leuven, Belgium — We used adiabatic scanning calorimetry (ASC) to study the impact of adding small amounts of cyclohexane on the N-SmA transition of the liquid crystal octylcyanobiphenyl (8CB). The transition remains continuous upto a mole fraction of cyclohexane near 0.05, where at a tricritical point the transition becomes first-order with latent heats increasing with mole fraction of cyclohexane. Along the continuous part of the N-SmA transition line the effective specific heat capacity critical exponent increases from 0.31 for 8CB to 0.50 at the tricritical point. Ongoing experiments with other non-mesogenic impurities will also be reported.

Jan Thoen
Lab. Akoestiek en Thermische fysica
Dept. Natuurkunde en Sterrenkunde, Katholieke Universiteit Leuven
Celestijnenlaan 200D, B-3001 Leuven, Belgium

Date submitted: 21 Nov 2005

Electronic form version 1.4