

Supporting Information

Liquid Viscosity and Surface Tension of *n*-Dodecane, *n*-Octacosane, Their Mixtures, and a Wax between 323 and 573 K by Surface Light Scattering (SLS)

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Table S1. Composition Analysis of the Samples $n\text{-C}_{12}\text{H}_{26}$, $n\text{-C}_{28}\text{H}_{58}$ and $0.3n\text{-C}_{12}\text{H}_{26}/0.7n\text{-C}_{28}\text{H}_{58}$ Before (w_{before}) and After (w_{after}) the SLS Measurements Using a GC Method and Additionally a Weighing Procedure in the Case of the Binary Mixture. The Corresponding Mass Fractions w_i are Given for the Different Groups i .

group i	$100 \cdot w_{i,\text{before}}$	$100 \cdot w_{i,\text{after}}$
sample $n\text{-C}_{12}\text{H}_{26}$		
$n\text{-C}_{12}\text{H}_{26}$	99.45 ^a	99.41 ^a
n -alkanes with $N_{\text{C}} = 8\text{-}17$ (except $n\text{-C}_{12}\text{H}_{26}$)	0.39 ^a	0.39 ^a
methyl-branched paraffins with $N_{\text{C}} = 12$	0.10 ^a	0.09 ^a
aromatic compounds with $N_{\text{C}} = 12$	0.02 ^a	0.04 ^a
other aromatic components	0.02 ^a	0.02 ^a
other unknown components	0.02 ^a	0.01 ^a
oxygenated components	0.00 ^a	0.02 ^a
sample $n\text{-C}_{28}\text{H}_{58}$		
$n\text{-C}_{28}\text{H}_{58}$	99.50 ^a	98.32 ^a
n -alkanes with $N_{\text{C}} = 8\text{-}30$ (except $n\text{-C}_{28}\text{H}_{58}$)	0.28 ^a	0.40 ^a
olefins with $N_{\text{C}} = 26\text{-}29$	0.04 ^a	0.10 ^a
carbonyls with $N_{\text{C}} = 14\text{-}27$	0.01 ^a	0.09 ^a
branched ketones with $N_{\text{C}} = 26\text{-}28$	0.16 ^a	0.46 ^a
branched alcohols with $N_{\text{C}} = 27\text{-}28$	0.00 ^a	0.64 ^a
sample $0.3n\text{-C}_{12}\text{H}_{26}/0.7n\text{-C}_{28}\text{H}_{58}$		
$n\text{-C}_{12}\text{H}_{26}$	15.6 ^b	14.77 ^a
$n\text{-C}_{28}\text{H}_{58}$	84.4 ^b	84.49 ^a
n -alkanes with $N_{\text{C}} = 10\text{-}30$ (except $n\text{-C}_{12}\text{H}_{26}$ and $n\text{-C}_{28}\text{H}_{58}$)	-	0.32 ^a
methyl-branched paraffins with $N_{\text{C}} = 12$	-	0.01 ^a
olefin components	-	0.06 ^a
oxygenated components	-	0.35 ^a

^aEstimated from GC analysis. The expanded uncertainties U are $100 \cdot U(w_i) = 0.1$ (level of confidence = 0.95).

^bEstimated from the GC results for the two pure n -alkane samples and from the weighing procedure. The expanded uncertainties U are $100 \cdot U(w_i) = 0.2$ (level of confidence = 0.95).

Table S2. Composition Analysis of the Wax Sample SX-70 Before the SLS Measurements Using a GC Method. The Corresponding Mass Fractions w_{N_C} are Given for the Different n -Alkanes with Carbon Number N_C .^a

N_C	$100 \cdot w_{N_C}$	N_C	$100 \cdot w_{N_C}$	N_C	$100 \cdot w_{N_C}$	N_C	$100 \cdot w_{N_C}$
14	0.001	29	4.820	44	2.006	59	0.021
15	0.004	30	5.604	45	1.557	60	0.015
16	0.006	31	6.211	46	1.184	61	0.013
17	0.006	32	6.592	47	0.889	62	0.011
18	0.005	33	6.780	48	0.662	63	0.009
19	0.012	34	6.777	49	0.486	64	0.007
20	0.034	35	6.645	50	0.358	65	0.006
21	0.078	36	6.384	51	0.261	66	0.006
22	0.173	37	6.020	52	0.192	67	0.005
23	0.364	38	5.550	53	0.139	68	0.005
24	0.708	39	5.011	54	0.105	69	0.004
25	1.251	40	4.393	55	0.075	70	0.003
26	2.009	41	3.763	56	0.052	>70	0.220
27	2.899	42	3.127	57	0.039		
28	3.880	43	2.533	58	0.030		

^aEstimated from GC analysis. The expanded uncertainties U are $100 \cdot U(w_{N_C}) = 0.1$ (level of confidence = 0.95).

Table S3. Liquid Density ρ' of the Wax SX-70 as a Function of Temperature T at Atmospheric Pressure Obtained from Volumetric Measurements.^a

T	ρ'
K	kg·m ⁻³
363.15	786.35
383.15	777.70
403.15	767.65
423.15	756.50

^aThe expanded uncertainties U are $U(T) = 0.1$ K and the relative expanded uncertainty U_r are $U_r(\rho') = 0.002$ (level of confidence = 0.95).

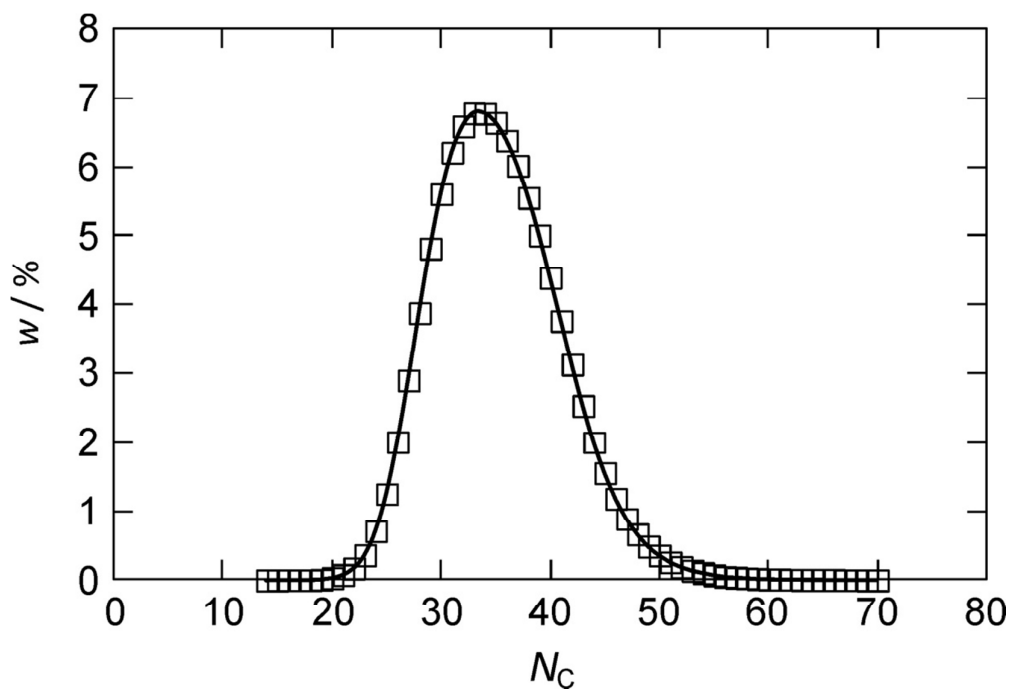


Figure S1. Composition analysis of the wax sample SX-70 before the SLS measurements using a GC method. The mass fraction data related to the n -alkanes with carbon number N_C are given as data points and refer to the values given in Table S1. The line serves as guide for the eye.