

## **Table Captions**

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**Table 1: Selection of lipid mixtures**

<b>Compositions</b>	<b>Melting peak (°C)</b>	<b>Onset temp (°C)</b>	<b>Enthalpy (J/g)</b>	<b>M.pt (°C)</b>	<b>Onset (°C)</b>	<b>Enthalpy (J/g)</b>
Gelucire 43/01	38.71	30.98	98.33			
Goat fat	51.16	48.55	25.28			
Compritol 888 Pellet	74.18	71.58	158.1			
<b>Binary solid/liquid lipid mixtures (NLC)</b>						
Goat fat/Transcutol 9:1	49.51	48.86	7.978			
Gelucire 43/01/Transcutol 7:3	36.31	35.07	1.395	40.94	39.67	11.13
Compritol 888/Transcutol 7:3	73.39	71.91	6.080			
<b>Binary solid/solid mixtures (SSC)</b>						
Compritol 888/Gelucire 1:2	44.00	-	21.97	63.00	60.45	2.756
Goat fat/Gelucire 1:1	45.92	42.13	22.96			
Goat fat/Compritol 1:1	47.77	48.18	5.513	64.87	62.72	20.25
<b>Ternary solid/liquid mixtures (NLC)</b>						
Goat fat/Gelucire/Transcutol 1:1	31.97	30.14	2.141			
Compritol/Gelucire/Transcutol 1:2	43.24	42.33	1.822	58.01	54.22	7.098
Goat fat/Compritol/Transcutol 2:1	48.06	43.79	7.248	57.81	55.18	6.320
<b>Repeated investigation with higher concentration</b>						
Gelucire 43/01/Transcutol 70:30	41.25	40.02	4.341			
Gelucire/Transcutol/ART 70:30:05	39.24	38.10	7.563			
Gelucire/Transcutol/ART 70:30:10	40.64	43.06	2.031			

**Table 2: Drug-solubility determination**

<b>Compositions</b>	<b>Melting peak (°C)</b>	<b>Onset temp. (°C)</b>	<b>Enthalpy (J/g)</b>	<b>M.pt (°C)</b>	<b>Onset temp. (°C)</b>	<b>Enthalpy (J/g)</b>
25% Transcutol in Gelucire 43/01	40.43	39.66	15.67			
30% Transcutol in Gelucire 43/01	41.25	40.02	4.341			
50% Transcutol in Gelucire 43/01	37.44	-	8.854	50.47	50.03	0.8062
75% Transcutol in Gelucire 43/01	38.08	34.54	19.93	73.05	71.19	0.5124
<b>50 mg ART-containing matrices</b>						
Artemether	86.96	85.51	87.51			
25% Transcutol in Gelucire/ART	41.65	-	6.593			
30 % Transcutol in Gelucire/ART	35.99	34.80	11.31			
50% Transcutol in Gelucire/ART	35.47	29.03	19.08	55.14	54.32	0.04467
75% Transcutol in Gelucire/ART	34.03	31.18	2.2244			
<b>P85G-containing matrices</b>						

25% Transcutol in Gelucire/P85G	41.65	40.23	6.693			
50% Transcutol in Gelucire/P85G	39.94	36.77	41.15	64.78	60.18	17.05
75% Transcutol in Gelucire/P85G	36.43	-	1.973	64.94	60.37	16.35
<b>50 mg ART-containing matrices</b>						
25% Transcutol-Gelucire/P85G/ART	17.94	12.85	1.998	35.16	34.85	6.228
75% Transcutol-Gelucire/P85G/ART	43.82	42.65	0.6623			

**Table 3: Percentage weight loss by TGA analysis of ART as a function of temperature**

Temperature range (°C)	ART percentage weight loss (%)	Inference
30-175	1.70	Possible water loss
175-200	18.20	First decomposition phase
200-280	80.09	Second decomposition phase

**Table 4: Particle characterization of NLC formulations**

<b>Compositions (g)</b>	<b>Particle properties on day 1</b>			<b>EE (%)</b>	<b>DL (%)</b>
	<b>Z-Av. (nm)</b>	<b>Pdi</b>	<b>ZP (mV)</b>		
Blank NLC	1506	0.924	-31.0	-	-
0.75 ART-NLC	1145	0.939	-34.2	29.33	3.91
0.50 ART-NLC	533	0.643	-36.9	44.43	8.89
0.25 ART-NLC	497.2	0.608	-40.4	60.63	24.25
0.10 ART-NLC	590.6	0.720	-38.4	51.65	51.65

**Table 5: Changes in particle size of NLC formulations within one week of preparation**

<b>Compositions</b>	<b>Z-Av. (nm)</b>	<b>PDI</b>	<b>ZP (mV)</b>
<b>3 days post production</b>			
Blank NLC	1085	0.772	-33.5
0.75g ART-NLC	864.8	0.797	-34.2
0.5g ART-NLC	697.7	0.770	-36.9
0.25g ART-NLC	379.0	0.577	-40.4
0.10g ART-NLC	489.1	0.549	-38.4
<b>6 days post production</b>			
Blank NLC	1350	0.773	-32.5
0.75g ART-NLC	449.9	0.632	-29.2
0.5g ART-NLC	354.2	0.432	-27.8
0.25g ART-NLC	249.0	0.457	-32.4
0.10g ART-NLC	304.0	0.503	-22.0
<b>Reconstituted NLC formulations</b>			
Blank NLC	786.9	0.738	-26.0
0.75g ART-NLC	490.0	0.693	-24.7
0.5g ART-NLC	612.6	0.638	-31.2
0.25g ART-NLC	499.1	0.683	-30.1
0.10g ART-NLC	273.0	0.581	-30.0

**Table 6: Particle size distribution by NTA analysis after 1 month of storage**

<b>Compositions</b>	<b>D10 (nm)</b>	<b>D50 (nm)</b>	<b>D90 (nm)</b>	<b>D70 (nm)</b>	<b>Mean size distribution (nm)</b>
Blank NLC	126	239	530	320	304
0.75g ART-NLC	57	108	247	145	135
0.5g ART-NLC	103	176	362	224	217
0.25g ART-NLC	107	180	346	230	219
0.10g ART-NLC	102	165	299	205	189

**Table 7: Thermal properties of NLC formulations**

<b>Compositions</b>	<b>Peak temp (°C)</b>	<b>Onset temp (°C)</b>	<b>Enthalpy (J/g)</b>	<b>Peak temp2 (°C)</b>	<b>Onset temp (°C)</b>	<b>Enthalpy (J/g)</b>	<b>Recrystallinity index (%)</b>
Blank NLC	49.29	47.60	0.1172	82.48	-	0.07452	8.0475
0.75g ART-NLC	47.41	-	0.08583	78.59	76.08	0.02062	2.2268
0.5g ART-NLC	42.14	40.55	0.09829	88.55	-	0.03814	3.4384
0.25g ART-NLC	47.88	-	0.2138	96.67	-	0.02772	2.3935
0.10g ART-NLC	47.37	-	0.2288	99.31	97.33	0.04048	4.3715