

Table 1. Qualitative and quantitative composition of semisolid formulations.

| Component | C-SP | C-SNP | C-D | C-B |
|---|-------------|--------------|------------|------------|
| Sodium acrylates copolymer, paraffinum | 4 g | 4 g | 4 g | 4 g |
| liquidum/PPG-1 trideceth-6 (Salcare® SC 91) | | | | |
| Caprylic/capric acid triglycerides | 2 g | 2 g | 2 g | 2 g |
| DEX-SP (with polymer) | ad 0.5 mg/g | - | - | - |
| DEX-SNP (without polymer) | - | ad 0.5 mg/g | - | - |
| DEX powder (raw material) | - | - | 0.05 g | - |
| Imidazolidinyl Urea | 0.6 g | 0.6 g | 0.6 g | 0.6 g |
| Citric acid | 0.2 g | 0.2 g | 0.2 g | 0.2 g |
| Distilled water | ad 100 g | ad 100 g | ad 100 g | ad 100 g |

Table 2. Physicochemical characteristics of DEX submicron particles (mean \pm SD, n = 3)

| Powder | Theoretical drug content (mg.g ⁻¹) | Experimental drug content (mg.g ⁻¹) | Encapsulation rate (%) | Yield (%) | Mean size from SEM images (μ m) |
|--------|--|---|------------------------|-----------------|--------------------------------------|
| SP | 500.00 | 467.75 \pm 12.77 | 93.55 \pm 2.55 | 81.01 \pm 9.5 | 0.975 \pm 0.29 |
| SNP | 833.33 | 835.53 \pm 45.03 | 100.21 \pm 5.41 | 38.20 \pm 1.1 | 0.523 \pm 0.18 |

Table 3. Physicochemical characteristics of creams* (mean \pm standard deviation, n = 3)

| Formulation | Appearance | Color | Drug content (mg/g) | pH |
|-------------|------------|-------|---------------------|-----------------|
| C-D | Cream | White | 0.502 \pm 0.01 | 7.40 \pm 0.10 |
| C-SP | Cream | White | 0.496 \pm 0.02 | 7.42 \pm 0.04 |
| C-SPNP | Cream | White | 0.480 \pm 0.01 | 7.39 \pm 0.05 |
| C-B | Cream | White | - | 7.63 \pm 0.06 |

*C-D: creams containing non-encapsulated DEX (free drug); C-SP: creams containing DEX-polymeric submicron particles; C-SPNP: creams containing DEX-submicron particles (non-polymeric particles); C-B: blank creams (without dexamethasone or particles)

Table 4. Mean size, SPAN and PDI of creams (mean \pm standard deviation, n = 3)

| Formulation | D [4,3]* | SPAN* | Mean size (nm)** | PDI** |
|-------------|--------------|----------------|------------------|-----------------|
| C-D | 712 \pm 4 | 1.3 \pm 0.06 | 322 \pm 6 | 0.34 \pm 0.16 |
| C-SP | 647 \pm 17 | 2.3 \pm 0.17 | 192 \pm 4 | 0.19 \pm 0.03 |
| C-SNP | 701 \pm 21 | 1.3 \pm 0.10 | 201 \pm 5 | 0.28 \pm 0.05 |
| C-B | 716 \pm 7 | 1.1 \pm 0.05 | 203 \pm 10 | 0.39 \pm 0.06 |

*LD; **PCS