

# Audit - EU DK MAL Code

## SIGMADUR 550 BASE

	Product as is	Ready-for-use mixture
MAL Code	4-3	Not applicable.
MAL Protection	<p><b>According to the regulations on work involving coded products, the following stipulations apply to the use of personal protective equipment:</b></p> <p><b>General:</b> Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. A face shield must be worn in work involving spattering if a full mask is not required. In this case, other recommended use of eye protection is not required.</p> <p>In all spraying operations in which there is return spray, the following must be worn: respiratory protection and arm protectors/ apron/coveralls/protective clothing as appropriate or as instructed.</p> <p>MAL-code: 4-3</p> <p><b>Application:</b> When spraying in new* booths if the operator is outside the spray zone. When using scraper or knife, brush, roller, etc. for pre- and post-treatments outside a closed facility, spray booth or spray cabin.</p> <p>- Air-supplied half mask and eye protection must be worn.</p> <p>When using scraper or knife, brush, roller, etc. for pre- and post-treatments in cabins or booths of the existing* facility type, if the operator is inside the spray zone.</p> <p>- Air-supplied half mask, coveralls and eye protection must be worn.</p> <p>During downtimes, cleaning and repair of closed facilities, spray booths or cabins, if there is a risk of contact with wet paint or organic solvents.</p> <p>- Air-supplied full mask and coveralls must be worn.</p> <p>When spraying in existing* spray booths, if the operator is outside the spray zone.</p> <p>- Air-supplied full mask, arm protectors and apron must be worn.</p> <p>During non-atomizing spraying in existing* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone.</p> <p>- Air-supplied full mask must be worn.</p> <p>During all spraying where atomization occurs in cabins or spray booths where the operator is inside the spray zone and during spraying outside a closed facility, cabin or booth.</p>	Not applicable.

- Air-supplied full mask, coveralls and hood must be worn.

Not applicable.

**Drying:** Items for drying/drying ovens that are temporarily placed on such things as rack trolleys, etc. must be equipped with a mechanical exhaust system to prevent fumes from wet items from passing through workers' inhalation zone.

**Polishing:** When polishing treated surfaces, a mask with dust filter must be worn. When machine grinding, eye protection must be worn. Work gloves must always be worn.

**Caution** The regulations contain other stipulations in addition to the above.

\*See Regulations.

Not applicable.

Not applicable.

Low Boiling  
Liquid

MAL Number

1898.4

Not applicable.

Audit (Textual)

4.3

Not applicable.

Figure-before-dash (from MAL Number) = 4  
1600 < MAL Number [1898.4] ≤ 3200  
MAL Number = density \* Σ[Conc(i) \* MAL Factor(i)] = 1.339 \* 1417.8 = 1898.4  
Density (from Density (g/m³) data entry) = 1.339  
Σ[Conc(i) \* MAL Factor(i)] = 1417.8  
[XYLENES] Conc \* MAL Factor = 24.18% \* 46 = 1112.2  
MAL Factor entered against range: '>0' = 46  
[N-BUTYL ACETATE] Conc \* MAL Factor = 5.229% \* 14 = 73.21  
MAL Factor entered against range: '>0' = 14  
[ETHYLBENZENE] Conc \* MAL Factor = 4.314% \* 46 = 198.4  
MAL Factor entered against range: '>0' = 46  
[2,6-DIMETHYLHEPTANONE] Conc \* MAL Factor = 0.3972% \* 47 = 18.67  
MAL Factor entered against range: '>0' = 47  
[toluene] Conc \* MAL Factor = 0.1141% \* 74 = 8.445  
MAL Factor entered against range: '>0' = 74  
[1-METHOXY-2-PROPYL ACETATE] Conc \* MAL Factor = 0.05112% \* 19 = 0.9714  
MAL Factor entered against range: '>0' = 19  
[1-BUTANOL] Conc \* MAL Factor = 0.0156% \* 67 = 1.045  
MAL Factor entered against range: '>0' = 67  
[ISOBUTYL ALCOHOL] Conc \* MAL Factor = 0.00999% \* 67 = 0.6693  
MAL Factor entered against range: '>0' = 67  
[BENZENE] Conc \* MAL Factor = 0.004285% \* 880 = 3.771  
MAL Factor entered against range: '>0' = 880  
[ACETIC ACID] Conc \* MAL Factor = 0.00052% \* 400 = 0.208  
MAL Factor entered against range: '>0' = 400  
[CUMENE] Conc \* MAL Factor = 0.0001392% \* 1000 = 0.1392  
MAL Factor entered against range: '>0' = 1000  
[2-METHOXY-1-PROPYL ACETATE] Conc \* MAL Factor = 0.000046% \* 181 = 0.008326  
MAL Factor entered against range: '>0' = 181  
[PROPYLENE OXIDE] Conc \* MAL Factor = 0.000001% \* 8333.3 = 0.008333  
From DK (Working Environment Authority) OELs: OELs in mg/m³ and ppm available: 2 \* 10000 / OEL in mg/m³ = 2 \* 10000 / 2.4 = 8333.3  
Available value in mg/m³ = 2.4  
Available value in ppm = 1  
Warning: ERCF of 2 used. Contact Authorities for MAL Factor.  
[ACETALDEHYDE] Conc \* MAL Factor = 0.0000002% \* 1000 = 0.0002  
MAL Factor entered against range: '>0' = 1000  
[HYDROCHLORIC ACID] Conc \* MAL Factor = 0.0000002% \* 2900 = 0.00058  
MAL Factor entered against range: '>0' = 2900  
[FORMALDEHYDE] Conc \* MAL Factor = 0.0000001% \* 2500 = 0.00025  
MAL Factor entered against range: '<0.1' = 2500

[ETHYLENE OXIDE] Conc \* MAL Factor = 0.0000001% \* 11111.1 = 0.001111  
 From DK (Working Environment Authority) OELs: OELs in mg/m³ and ppm available: 2 \* 10000 / OEL in mg/m³ = 2 \* 10000 / 1.8 = 11111.1  
 Available value in mg/m³ = 1.8  
 Available value in ppm = 1  
 Warning: ERCF of 2 used. Contact Authorities for MAL Factor.

[1,4-DIOXANE] Conc \* MAL Factor = 0.00000008% \* 390 = 0.0000312  
 MAL Factor entered against range: '>0' = 390

[METHYL ALCOHOL] Conc \* MAL Factor = 0.00000008% \* 54 = 0.00000432  
 MAL Factor entered against range: '>0' = 54

[METHYL CHLORIDE] Conc \* MAL Factor = 0.00000008% \* 476.2 = 0.00003810  
 From DK (Working Environment Authority) OELs: OELs in mg/m³ and ppm available: 2 \* 10000 / OEL in mg/m³ = 2 \* 10000 / 42 = 476.2  
 Available value in mg/m³ = 42  
 Available value in ppm = 20  
 Warning: ERCF of 2 used. Contact Authorities for MAL Factor.

Ingredients with MAL factor of 0 [did not contribute] {Denmark MAL Code}

hydroxy acrylic resin (25.68%)  
 Default assumption [non-volatile] = 0

TITANIUM DIOXIDE (17.96%)  
 MAL Factor entered against range: '>0' = 0

BARIUM SULFATE (15.84%)  
 MAL Factor entered against range: '>0' = 0

Talc, non-asbestos form (2.836%)  
 MAL Factor entered against range: '>0' = 0

N,N-1,6-HEXANEDIYLBIS (12-HYDROXY-OCTADECANEIMIDE) (0.8%)  
 MAL Factor entered against range: '>0' = 0

ALUMINUM HYDROXIDE (0.665%)  
 MAL Factor entered against range: '>0' = 0

CHLORITE-GROUP MINERALS (0.5246%)  
 MAL Factor entered against range: '>0' = 0

Reaction mass of Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate (0.3%)  
 Default assumption [non-volatile] = 0

SILICA (0.19%)  
 MAL Factor entered against range: '>0' = 0

QUARTZ (<10 microns) (0.1846%)  
 MAL Factor entered against range: '>0' = 0

modified polyurethane (0.18%)  
 Default assumption [non-volatile] = 0

DOLOMITE (0.1046%)  
 MAL Factor entered against range: '>0' = 0

4,6-DIMETHYL-2-HEPTANONE (0.0993%)  
 Default assumption [non-volatile] = 0

ZIRCONIUM OXIDE (0.095%)  
 MAL Factor entered against range: '>0' = 0

TRIMETHYLOLPROPANE (0.0855%)  
 MAL Factor entered against range: '>0' = 0

2-HYDROXYETHYL METHACRYLATE (0.06848%)  
 MAL Factor entered against range: '>0' = 0

ALKOXYLATED BUTYL ETHER (0.03%)  
 MAL Factor entered against range: '>0' = 0

polysiloxane (0.014%)  
 Default assumption [non-volatile] = 0

QUARTZ (>10 microns) (0.00875%)  
 MAL Factor entered against range: '>0' = 0

polyglycol (0.007576%)  
 Default assumption [non-volatile] = 0

fluorinated polyalkyl silicones (0.00349%)  
 Default assumption [non-volatile] = 0

WATER (0.00208%)  
 MAL Factor entered against range: '>0' = 0

dibutyltin dilaurate (0.0009901%)  
 MAL Factor entered against range: '>0' = 0

OCTAMETHYLCYCLOTETRAILOXANE (0.0001885%)  
 MAL Factor entered against range: '>0' = 0

Decamethylcyclopentasiloxane (0.0001%)  
 MAL Factor entered against range: '>0' = 0

dodecamethylcyclohexasiloxane (0.00004%)  
 Default assumption [non-volatile] = 0

organotin compound (0.00002%)

From US (ACGIH) OELs: Product is assumed to be non-volatile, due to an OEL in mg/m<sup>3</sup> being available, and no ppm OEL being available] = 0  
 Available value in mg/m<sup>3</sup> = 0.1  
 Figure-after-dash (Ingredient(s) above the cut-off on their own) = 3  
 Ingredients above the Figure-after-dash 3 concentration limit on their own {Denmark MAL Code}  
 XYLENES (24.18%)  
 Ingredient concentration is above the limit [10%]  
 Stricter figure-after-dash numbers that are not available because  $\Sigma [\text{ing conc} / \text{ing limit}] < 1$   
 Figure-after-dash 6 calculated ratio:  $\Sigma [\text{ing conc} / \text{ing limit}] = 0.062549912$   
 QUARTZ (<10 microns): Ing conc / Ing limit = 0.1846 / 10 = 0.01846  
 Minimum value of concentration limit associated with figure-after-dash 6 = 10  
 BENZENE: Ing conc / Ing limit = 0.004285 / 0.1 = 0.04285  
 Minimum value of concentration limit associated with figure-after-dash 6 = 0.1  
 dibutyltin dilaurate: Ing conc / Ing limit = 0.0009901 / 1 = 0.0009901  
 Minimum value of concentration limit associated with figure-after-dash 6 = 1  
 2-METHOXY-1-PROPYL ACETATE: Ing conc / Ing limit = 0.000046 / 0.2 = 0.00023  
 Minimum value of concentration limit associated with figure-after-dash 6 = 0.2  
 PROPYLENE OXIDE: Ing conc / Ing limit = 0.000001 / 0.1 = 0.00001  
 Minimum value of concentration limit associated with figure-after-dash 6 = 0.1  
 Figure-after-dash (CLP hazard) = 6  
 GHS Status - EU  
 Carcinogen - Category 1B - From 'Entered data'  
 Entered data - [EU] [9] [Datalink]  
 Germ cell mutagenicity - Category 1B - From 'Entered data'  
 Entered data - [EU] [9] [Datalink]  
 FORMALDEHYDE: Ing conc / Ing limit = 0.0000001 / 1 = 0.0000001  
 Minimum value of concentration limit associated with figure-after-dash 6 = 1  
 ETHYLENE OXIDE: Ing conc / Ing limit = 0.0000001 / 0.1 = 0.000001  
 Minimum value of concentration limit associated with figure-after-dash 6 = 0.1  
 Figure-after-dash (CLP hazard) = 6  
 GHS Status - EU  
 Carcinogen - Category 1B - From 'Entered data'  
 Entered data - [EU] [14] [Datalink]  
 Germ cell mutagenicity - Category 1B - From 'Entered data'  
 Entered data - [EU] [14] [Datalink]  
 Reproductive toxicity  
 Calculation intermediates involved in final hazard assignment  
 Reproductive toxicity - Fertility - Category 1B - Effect On: Fertility - From 'Entered data'  
 Entered data - [EU] [14] [Datalink]  
 Reproductive toxicity - Unborn child - Category 2 - Effect On: UnbornChild - From 'Entered data'  
 Entered data - [EU] [14] [Datalink]  
 1,4-DIOXANE: Ing conc / Ing limit = 0.00000008 / 10 = 0.000000008  
 Minimum value of concentration limit associated with figure-after-dash 6 = 10  
 METHYL ALCOHOL: Ing conc / Ing limit = 0.00000008 / 20 = 0.000000004  
 Minimum value of concentration limit associated with figure-after-dash 6 = 20  
 METHYL CHLORIDE: Ing conc / Ing limit = 0.00000008 / 0.1 = 0.0000008  
 Minimum value of concentration limit associated with figure-after-dash 6 = 0.1  
 Figure-after-dash (OEL Criteria - Carcinogen) = 6  
 DK OEL: Carcinogen CMR applicable  
 Figure-after-dash 5 calculated ratio:  $\Sigma [\text{ing conc} / \text{ing limit}] = 0.313696$   
 Reaction mass of Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate: Ing conc / Ing limit = 0.3 / 1 = 0.3  
 Minimum value of concentration limit associated with figure-after-dash 5 = 1  
 Figure-after-dash (CLP hazard) = 5  
 GHS Status - EU  
 Skin sensitization - Category 1A - From 'Entered data'  
 Entered data - [EU] [99] [User]  
 2-HYDROXYETHYL METHACRYLATE: Ing conc / Ing limit = 0.06848 / 5 = 0.01370  
 Minimum value of concentration limit associated with figure-after-dash 5 = 5  
 Figure-after-dash 4 calculated ratio:  $\Sigma [\text{ing conc} / \text{ing limit}] = 0.00002084$   
 ACETIC ACID: Ing conc / Ing limit = 0.00052 / 25 = 0.0000208  
 Minimum value of concentration limit associated with figure-after-dash 4 = 25  
 HYDROCHLORIC ACID: Ing conc / Ing limit = 0.0000002 / 5 = 0.00000004  
 Minimum value of concentration limit associated with figure-after-dash 4 = 5