

# Audit - EU DK MAL Code

## SIGMAZINC 100 HARDENER

### Denmark MAL Code

#### Audit - MAL Code

EU Denmark MAL Code:- 4-5

The MAL Code calculations are performed with product and component data.

Product is a Liquid

SIGMAZINC 100 HARDENER - Components considered for the MAL Code calculation. {Denmark MAL Code}

POLYAMIDE RESIN (37.1413%)

CAS: 68410-23-1

Density: 0.981

Vapour Pressure: 0

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 0. Limit: 0

FAD entered: 3; Lower Limit: 2

FAD 3 Quotient = 18.571

ETHYLBENZENE (32.32785%)

Organic Solvent.

Carcinogen.

CAS: 100-41-4

Density: 0.866

Relative Density: 0.9

Molecular Weight: 106.18

Boiling Point: 136.1

Vapour Pressure: 9.30076

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 46. Limit: 0

FAD entered: 3; Lower Limit: 10

FAD 3 Quotient = 3.233

XYLENES (18.58215%)

Organic Solvent.

CAS: 1330-20-7

Density: 0.86

Relative Density: 0.861

Molecular Weight: 106.17

Boiling Point: 136.16

Vapour Pressure: 6.7

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 46. Limit: 0

FAD entered: 3; Lower Limit: 10

FAD 3 Quotient = 1.858

FAD 1 Quotient = 92.911

PROPYLENE GLYCOL MONOMETHYL ETHER (4.9775%)

Organic Solvent.

CAS: 107-98-2

Density: 0.92

Relative Density: 0.92

Molecular Weight: 90.14

Boiling Point: 120.17

Vapour Pressure: 8.5

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 28. Limit: 0

FAD entered: 1; Lower Limit: 0

FAD 1 Quotient = 4977.5

ISOBUTYL ALCOHOL (3.8%)

Organic Solvent.

CAS: 78-83-1

Density: 0.802

Relative Density: 0.8

Molecular Weight: 74.14

Boiling Point: 108

Vapour Pressure: 10.800918

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 67. Limit: 0

FAD entered: 1; Lower Limit: 0

FAD 1 Quotient = 3800

2,4;6 TRIS (DIMETHYLAMINOMETHYL) PHENOL (1.9%)

CAS: 90-72-2

Density: 0.971

Molecular Weight: 265.45

Boiling Point: 341

Vapour Pressure: 0.056

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 0. Limit: 0

FAD entered: 1; Lower Limit: No limit specified. A very low value will be used.

FAD 3 Quotient = 0.95

TRIETHYLENETETRAMINE (1.1487%)

CAS: 112-24-3

Density: 0.982

Relative Density: 0.98

Molecular Weight: 146.24

Boiling Point: 266.5

Vapour Pressure: 0.00882

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 0. Limit: 0

FAD entered: 5; Lower Limit: 1

FAD 5 Quotient = 1.149

BIS(DIMETHYLAMINOMETHYL)PHENOL (0.1%)

CAS: 71074-89-0

Density: 0.951

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 0. Limit: 0

FAD entered: 1; Lower Limit: No limit specified. A very low value will be used.

FAD 4 Quotient = 0.1

2-METHOXY-1-PROPANOL (0.0145%)

Organic Solvent.

CAS: 1589-47-5

Density: 0.938

Molecular Weight: 90.14

Boiling Point: 130

Vapour Pressure: 4.1

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 267. Limit: 0

FAD entered: 1; Lower Limit: No limit specified. A very low value will be used.

FAD 6 Quotient = 0.007

WATER (0.0075%)

CAS: 7732-18-5

Density: 1

Molecular Weight: 18.02

Boiling Point: 100

Vapour Pressure: 17.5

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 0. Limit: 0

FAD entered: 0; Lower Limit: 0

ACETIC ACID (0.0005%)

Organic Solvent.

CAS: 64-19-7

Density: 1.04

Relative Density: 1.05

Molecular Weight: 60.06

Boiling Point: 117.9

Vapour Pressure: 15.59383

No LBL Factor entered or estimated from CAS Number or Boiling Point.

MAL Factor entered: 400. Limit: 0

FAD entered: 1; Lower Limit: No limit specified. A very low value will be used.

FAD 4 Quotient = 0.000

FAD 3 Quotient = 0.000

Density = 0.908. Entered value.

Figure-before-the dash = 4

POLYAMIDE RESIN(@37.14%). MAL Factor = 0. Total increased by  $37.14 \times 0 = 0$ . Running Total = 0

ETHYLBENZENE(@32.33%). MAL Factor = 46. Total increased by  $32.33 \times 46 = 1487.08$ . Running Total = 1487.08

XYLENES(@18.58%). MAL Factor = 46. Total increased by  $18.58 \times 46 = 854.78$ . Running Total = 2341.86

PROPYLENE GLYCOL MONOMETHYL ETHER(@4.98%). MAL Factor = 28. Total increased by  $4.98 \times 28 = 139.37$ . Running Total = 2481.23

ISOBUTYL ALCOHOL(@3.8%). MAL Factor = 67. Total increased by  $3.8 \times 67 = 254.6$ . Running Total = 2735.83

2,4,6 TRIS (DIMETHYLAMINOMETHYL) PHENOL(@1.9%). MAL Factor = 0. Total increased by  $1.9 \times 0 = 0$ . Running Total = 2735.83

TRIEHTYLENETETRAMINE(@1.15%). MAL Factor = 0. Total increased by  $1.15 \times 0 = 0$ . Running Total = 2735.83

BIS(DIMETHYLAMINOMETHYL)PHENOL(@0.1%). MAL Factor = 0. Total increased by  $0.1 \times 0 = 0$ . Running Total = 2735.83

2-METHOXY-1-PROPANOL(@0.01%). MAL Factor = 267. Total increased by  $0.01 \times 267 = 3.87$ . Running Total = 2739.70

WATER(@0.01%). MAL Factor = 0. Total increased by  $0.01 \times 0 = 0$ . Running Total = 2739.70

ACETIC ACID(@0.00%). MAL Factor = 400. Total increased by  $0.00 \times 400 = 0.2$ . Running Total = 2739.90

Figure-before-the-dash calculated as 4. Via MAL Factor Total \* Density ( $2739.90 \times 0.908$ ) giving a MAL Number of 2488

MAL Number = Density (0.908) \* Sum (2739.90) = 2488

Figure-after-the-dash = 5. Calculated from component data.

POLYAMIDE RESIN (@37.14%) Increasing Total for FAD3 by 18.57065, giving 18.57065

ETHYLBENZENE (@32.33%) Increasing Total for FAD3 by 3.232785, giving 21.803435

XYLENES (@18.58%) Increasing Total for FAD3 by 1.858215, giving 23.661650

XYLENES (@18.58%) Increasing Total for FAD1 by 92.91075, giving 92.91075

PROPYLENE GLYCOL MONOMETHYL ETHER (@4.98%) Increasing Total for FAD1 by 4977.5, giving 5070.41075

ISOBUTYL ALCOHOL (@3.8%) Increasing Total for FAD1 by 3800, giving 8870.41075

2;4;6 TRIS (DIMETHYLAMINOMETHYL) PHENOL (@1.9%) Increasing Total for FAD3 by 0.95, giving 24.611650

TRIETHYLENETETRAMINE (@1.1487%) Increasing Total for FAD5 by 1.1487, giving 1.1487

BIS(DIMETHYLAMINOMETHYL)PHENOL (@0.1%) Increasing Total for FAD4 by 0.1, giving 0.1

2-METHOXY-1-PROPANOL (@0.01%) Increasing Total for FAD6 by 0.00725, giving 0.00725

ACETIC ACID (@0.00%) Increasing Total for FAD4 by 0.00002, giving 0.10002

ACETIC ACID (@0.00%) Increasing Total for FAD3 by 0.00005, giving 24.611700

Figure-after-the-dash =5. Total of components with FAD=5 is  $\geq 1$ .

Low Boiling Liquid = Empty. Insufficient information available.

Recommended Usage Temperature is  $< 40\text{C}$ , hence no MAL Code in use is assigned.

#### Audit - RFU MAL Code

EU Denmark RFU MAL Code:-

Nothing was found

#### New Fields for IA3.3

- MAL-code : 4-5
- MAL Number : 2487.83
- MAL Number (RFU) : Not applicable.

**Protection based on MAL : According to the regulations on work involving coded products, the following stipulations apply to the use of personal protective equipment:**

**General:** 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.

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.

MAL-code: 4-5

**Application:** When using scraper or knife, brush, roller etc. for pre- and post-treatments in a spray booth where the operator is outside the spray zone and when working in similar new\* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone. When spraying in new\* booths and cabins with non-atomizing guns.

- Protective clothing must be worn.

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. When using scraper or knife, brush, roller, etc. for pre- and post-treatments outside a closed facility, spray booth or spray cabin.

- Air-supplied half mask, protective clothing and eye protection must be worn.

When spraying in new\* booths if the operator is outside the spray zone.

- Air-supplied half mask and eye protection must be worn.

When spraying in existing\* spray booths, if the operator is outside the spray zone. 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. 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.

- Air-supplied full mask and protective clothing must be worn.

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.

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

**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.

**Protection based on R-F-U MAL** : Not available.

Not available.

Not available.