# Environmental Product Declaration

*according to ISO 14025 and EN 15804*

This declaration is for:

**Dulux Trade Weathershield Quick Dry Exterior Satin**

Provided by:

**AkzoNobel Decorative Paints**





program operator
**Stichting MRPI®**
publisher
**Stichting MRPI®**
**www.mrpi.nl**

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**1.1.00383.2022**
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**11-11-2027**

## COMPANY INFORMATION

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## MRPI® REGISTRATION

1.1.00383.2022

## DATE OF ISSUE

11-11-2022

## EXPIRY DATE

11-11-2027

## PRODUCT

Dulux Trade Weathershield Quick Dry Exterior Satin

## DECLARED UNIT/FUNCTIONAL UNIT

All impacts are calculated using the declared unit “decoration of 1 m² of surface”

## DESCRIPTION OF PRODUCT

Dulux Trade Weathershield Quick Dry Exterior Satin is a water-based, mid sheen finish which is part of a paint system developed for long lasting protection of exterior wood.

## VISUAL PRODUCT




## MORE INFORMATION

*https://www.duluxtradepaintexpert.co.uk/en/products/dulux-trade-weathershield-quick-dry-exterior-satin*

## SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **ing. Kamiel Jansen, Aveco de Bondt.**
The LCA study has been done by **Mart van Assem & Jur Remeijn, Ecomatters.**
The certificate is based on an LCA-dossier according to ISO14025 and EN15804+A2. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

## PROGRAM OPERATOR

Stichting MRPI®
Kingsfordweg 151
1043GR
Amsterdam

ir. J-P den Hollander, Managing director MRPI®

| *DEMONSTRATION OF VERIFICATION* |
|---|
| CEN standard EN15804 serves as the core PCR[a] |
| Independent verification of the declaration and data, according to EN ISO 14025:2010: internal: external: X |
| Third party verifier: Jansen ing. Kamiel Jansen, Aveco de Bondt |
| [a] PCR = Product Category Rules |

## DETAILED PRODUCT DESCRIPTION

Weathershield Quick Dry Exterior Satin from Dulux Trade is a water-based, mid-sheen finish which is part of a paint system specifically developed to give long lasting protection for exterior wood. Tests show that the Weathershield Quick Dry Exterior Satin system will provide extensive protection for up to six years if correctly applied as per the instructions for use. Contains a fungicide to inhibit mould growth on the paint film and help it stay cleaner for longer.

*Typical Use*

Ideal for use on exterior woodwork, primed metal and plastic.

*Application Method*

Brush only. Do not spray. Do not use in temperatures below 10°C or outside where there is a likelihood of rain, fog or frost

*Pack Size*

The products are packed in packaging with a capacity of 1L, 2,5L and 5L.

*Production process and conditions of delivery*

During paint production, the raw materials are pre-weighed according to the percentage of each in the formulation. The pigment is then dispersed in a mixture of binder and solvent using a variety of machines. The amount and type of dispersion is product specific and depends on the type of finish required. Finally, tinter is added to correct the colour, the paint is thinned to viscosity, filtered and filled into the appropriate packaging container. All paint containers are transported from the production sites to a distribution center and finally to the customers in the UK.

| COMPONENT >1% of total mass | [kg / %] |
|---|---|
| Pigments | Confidential |
| Binder | Confidential |
| Water | Confidential |

## SCOPE AND TYPE

The type of this EPD is Cradle-to-Gate with options. All major steps from the extraction of natural resources to the final disposal of the product are included in the environmental performance of the manufacturing phase, except those that are not relevant to the environmental performance of the product. This declaration does not imply an indicator result of zero.

This EPD is representative for products produced in the UK and EU. The paint is produced in Ashington, UK and the application market is for customers in the UK. Likewise, for the end-of-life, the fate of the paint product is described within an UK and EU context.

The software GaBi 10.5.1.124 Professional is used to perform the LCA. In the model Ecoinvent 3.8 database was used.

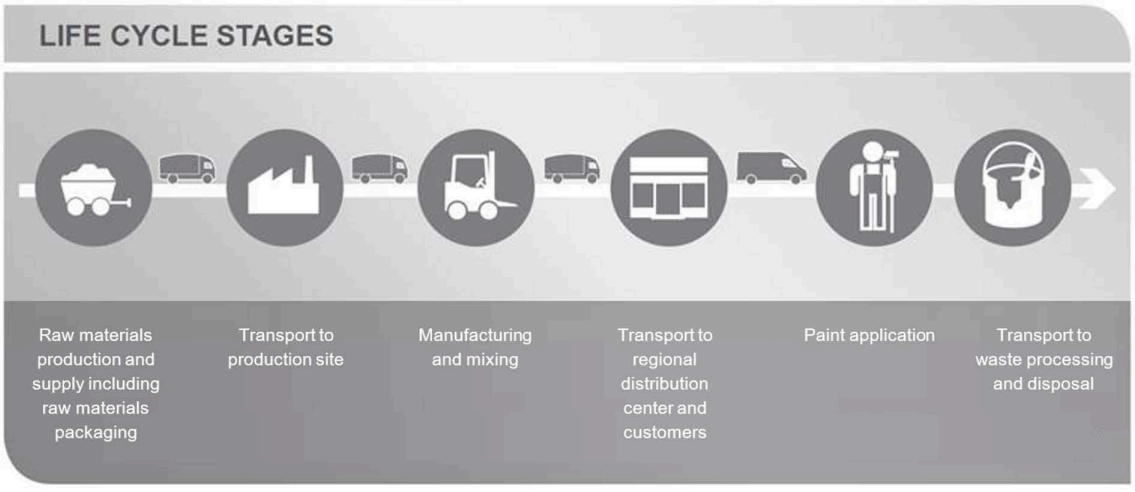
The validity of this EPD is in correspondence with the specifications of the LCA project report.

All impacts associated with the upstream production of materials and energy are included in the system boundaries. Mining activities and controlled landfills are included in the product systems. The emissions and resource extractions derived from these processes are considered elementary exchanges between the product systems and the environment.

| PRODUCT STAGE | | | CONSTRUCTION PROCESS STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw material supply | Transport | Manufacturing | Transport gate to site | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |

X = Modules Assessed

ND = Not Declared




*LCA process diagram according to EN 15804 (7.2.1)*

## REPRESENTATIVENESS

This EPD is representative for the 3 paint products belonging to the Dulux Trade Weathershield Quick Dry Exterior Satin:

1. Dulux Trade Weathershield Quick Dry Exterior Satin Medium Base
2. Dulux Trade Weathershield Quick Dry Exterior Satin Extra Deep Base
3. Dulux Trade Weathershield Quick Dry Exterior Satin Pure Brilliant White

This EPD is representative for the products manufactured in the UK and sold in the UK. The paint is produced at one production site: Ashington, UK

## ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq. | 8.00 E+0 | 2.51 E-3 | 1.07 E-2 | 8.01 E+0 | 3.93 E-3 | 1.46 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.28 E-4 | 0.00 | 1.73 E-2 | 0.00 |
| GWP-fossil | kg CO2 eq. | 8.82 E-2 | 2.50 E-3 | 1.74 E-2 | 1.08 E-1 | 3.91 E-3 | 1.28 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.26 E-4 | 0.00 | 1.73 E-2 | 0.00 |
| GWP-biogenic | kg CO2 eq. | 1.96 E-4 | 9.13 E-6 | -6.67 E-3 | -6.47 E-3 | 1.43 E-5 | 1.82 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.56 E-6 | 0.00 | 2.82 E-6 | 0.00 |
| GWP-luluc | kg CO2 eq. | 4.03 E-5 | 9.34 E-7 | 8.98 E-6 | 5.03 E-5 | 1.46 E-6 | 2.41 E-7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.59 E-7 | 0.00 | 3.12 E-7 | 0.00 |
| ODP | kg CFC11 eq. | 7.73 E-9 | 6.01 E-10 | 2.20 E-10 | 8.55 E-9 | 9.41 E-10 | 4.21 E-11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.03 E-10 | 0.00 | 1.26 E-10 | 0.00 |
| AP | mol H+ eq. | 5.42 E-4 | 1.27 E-5 | 5.29 E-5 | 6.08 E-4 | 1.99 E-5 | 2.17 E-6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.17 E-6 | 0.00 | 4.06 E-6 | 0.00 |
| EP-freshwater | kg P eq. | 1.49 E-5 | 1.57 E-7 | 6.20 E-7 | 1.57 E-5 | 2.46 E-7 | 8.05 E-8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.68 E-8 | 0.00 | 4.81 E-8 | 0.00 |
| EP-marine | kg N eq. | 7.98 E-5 | 4.36 E-6 | 1.25 E-5 | 9.67 E-5 | 6.83 E-6 | 1.14 E-6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.44 E-7 | 0.00 | 1.57 E-6 | 0.00 |
| EP-terrestrial | mol N eq. | 8.31 E-4 | 4.77 E-5 | 1.29 E-4 | 1.01 E-3 | 7.46 E-5 | 7.84 E-6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.13 E-6 | 0.00 | 1.72 E-5 | 0.00 |
| POCP | kg NMVOC eq. | 2.89 E-4 | 1.42 E-5 | 4.01 E-5 | 3.43 E-4 | 2.23 E-5 | 4.16 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.43 E-6 | 0.00 | 4.67 E-6 | 0.00 |
| ADP-minerals & metals | kg Sb eq. | 3.60 E-7 | 5.78 E-9 | 4.28 E-8 | 4.09 E-7 | 9.05 E-9 | 9.32 E-9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.85 E-10 | 0.00 | 1.08 E-9 | 0.00 |
| ADP-fossil | MJ, net calorific value | 1.47 E+0 | 3.94 E-2 | 1.87 E-1 | 1.70 E+0 | 6.17 E-2 | 3.65 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.72 E-3 | 0.00 | 9.31 E-3 | 0.00 |
| WDP | m3 world eq. deprived | 1.82 E+0 | 2.01 E-4 | 1.59 E-3 | 1.82 E+0 | 3.14 E-4 | 6.43 E-5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.42 E-5 | 0.00 | 4.10 E-4 | 0.00 |

GWP-total = Global Warming Potential total
GWP-fossil = Global Warming Potential fossil fuels
GWP-biogenic = Global Warming Potential biogenic
GWP-luluc = Global Warming Potential land use and land use change
ODP = Depletion potential of the stratospheric ozone layer
AP = Acidification Potential, Accumulated Exceedence
EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment
EP-terrestrial = Eutrophication Potential, Accumulated Exceedence
POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]
ADP-fossil = Abiotic Depletion for fossil resources potential [2]
WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

## ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 1.18 E-8 | 2.32 E-10 | 6.77 E-10 | 1.27 E-8 | 3.63 E-10 | 2.91 E-11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.95 E-11 | 0.00 | 6.19 E-11 | 0.00 |
| IRP | kBq U235 eq. | 7.84 E-3 | 1.99 E-4 | 4.70 E-4 | 8.51 E-3 | 3.11 E-4 | 2.11 E-5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.39 E-5 | 0.00 | 3.89 E-5 | 0.00 |
| ETP-fw | CTUe | 5.19 E+0 | 3.18 E-2 | 8.08 E-2 | 5.30 E+0 | 4.98 E-2 | 7.59 E+0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.42 E-3 | 0.00 | 9.45 E-3 | 0.00 |
| HTP-c | CTUh | 1.00 E-10 | 8.48 E-13 | 1.84 E-11 | 1.19 E-10 | 1.33 E-12 | 6.63 E-12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.45 E-13 | 0.00 | 2.19 E-11 | 0.00 |
| HTP-nc | CTUh | 8.21 E-9 | 2.91 E-11 | 2.02 E-10 | 8.44 E-9 | 4.55 E-11 | 1.19 E-10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.96 E-12 | 0.00 | 6.98 E-11 | 0.00 |
| SQP | --- | 1.76 E-1 | 4.49 E-2 | 5.73 E-1 | 7.94 E-1 | 7.02 E-2 | 4.86 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.65 E-3 | 0.00 | 1.67 E-2 | 0.00 |

PM = Potential incidence of disease due to PM emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

Disclaimer [1]

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

## RESOURCE USE per functional unit or declared unit (A1 / A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 3.98 E-2 | 5.02 E-4 | 1.03 E-1 | 1.43 E-1 | 7.85 E-4 | 2.03 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.56 E-5 | 0.00 | 1.08 E-4 | 0.00 |
| PERM | MJ | 2.51 E-5 | 2.34 E-10 | 4.76 E-5 | 7.27 E-5 | 3.66 E-10 | 6.84 E-11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.99 E-11 | 0.00 | 1.79 E-10 | 0.00 |
| PERT | MJ | 3.98 E-2 | 5.02 E-4 | 1.03 E-1 | 1.43 E-1 | 7.85 E-4 | 2.03 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.56 E-5 | 0.00 | 1.08 E-4 | 0.00 |
| PENRE | MJ | 1.47 E+0 | 3.94 E-2 | 1.87 E-1 | 1.70 E+0 | 6.17 E-2 | 3.65 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.72 E-3 | 0.00 | 9.31 E-3 | 0.00 |
| PENRM | MJ | 2.61 E-7 | 0.00 | 5.97 E-10 | 2.62 E-7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PENRT | MJ | 1.47 E+0 | 3.94 E-2 | 1.87 E-1 | 1.70 E+0 | 6.17 E-2 | 3.66 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.72 E-3 | 0.00 | 9.31 E-3 | 0.00 |
| SM | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| RSF | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NRSF | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FW | m3 | 4.24 E-2 | 4.67 E-6 | 4.20 E-5 | 4.24 E-2 | 7.31 E-6 | 1.50 E-6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.97 E-7 | 0.00 | 9.55 E-6 | 0.00 |

PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable energy resources used as raw materials
PERT = Total use of renewable primary energy resources
PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials
PENRM = Use of non-renewable primary energy resources used as raw materials
PENRT = Total use of non-renewable primary energy resources
SM = Use of secondary materials
RSF = Use of renewable secondary fuels
NRSF = Use of non renewable secondary fuels
FW = Use of net fresh water

## OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 0.00 | 0.00 | 1.30 E-4 | 1.30 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NHWD | kg | 0.00 | 0.00 | 3.61 E-4 | 3.61 E-4 | 0.00 | 5.60 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.92 E-2 | 0.00 |
| RWD | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CRU | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MFR | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.99 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MER | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| EEE | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ETE | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

HWD = Hazardous Waste Disposed
NHWD = Non Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
CRU = Components for reuse
MFR = Materials for recycling
MER = Materials for energy recovery
EEE = Exported Electrical Energy
ETE = Exported Thermal Energy

## BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 / A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCCpr | kg C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BCCpa | kg C | 0.00 | 0.00 | -1.07 E-3 | -1.07 E-3 | 0.00 | 1.07 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

BCCpr = Biogenic carbon content in product
BCCpa = Biogenic carbon content in packaging

## CALCULATION RULES

*Cut off criteria*

The cut-off is considered in the raw material supply stage (A1). Cut-off of inputs comprises of the raw materials, for which no appropriate proxies were found. In this study there were no cut-off inputs. The energy consumed during application, used for instance in spray applicators, has not been included due to its insignificance. For recycling of waste packaging material (metal and plastic), a cut-off approach was followed. The cut-off point is chosen to be the end of waste treatment.

*Data quality and data collection period*

Specific data was collected from AkzoNobel though a questionnaire, including inquiries about paint characteristics and packaging, logistics data (e.g. transport), production information and end-of-life. The data collection period for specific data was the year 2022.

Data gaps (i.e. transport data, end of life scenarios) were covered with data generic values for transport as described in the Product Environmental Footprint Category Rules - Decorative Paints document version 1.0 published by CEPE and reviewed in April 2018. Further data gaps (i.e. end-of-life transport data) were covered with data from internal AkzoNobel LCA studies concerning the same type of products (paints and coatings). Generic data (i.e. upstream acquisition and production of raw materials, energy generation, transport, waste treatment processes) was selected from Ecoinvent 3.8 database. In the case of missing data, a relevant proxy was searched and adjusted to the corresponding unit process.

*Allocation procedure*

To allocate the emissions and inputs to the manufactured products, the decision-hierarchy in ISO 14044 is used (ISO 2006). It is not possible to sub-divide the site data into a more detailed level or find physical causalities between inputs and outputs, thus allocation is done based on mass, considering the annual production of paint product for each site. The paint production is basically a process of mixing ingredients and, therefore, the environmental impact is fairly to be related to the mass of the products.

| Parameter | Unit | Value |
|---|---|---|
| VOC content | g/l | 35.2 |
| Density | kg/l | 1.18348 |
| Coverage | m2/l | 20 |
| Number of layers | Quantity | 1 |
| Total product used | kg/m2 | 0.059 |

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

*A1. Raw materials supply*

This module considers the extraction and processing of all raw materials and energy which occur upstream to the Dulux Trade Weathershield Quick Dry Exterior Satin manufacturing process, as well as waste processing up to the end-of waste state.

*A2. Transport of raw materials to manufacturer*

This includes the transport distance of the raw materials to the manufacturing facility via road.

| Vehicle type used for transport | Truck |
|---|---|
| Distance, km | 460 |
| Capacity | >32 t ,64% payload |
| Bulk density of transported products, kg/m3 | 1441 kg/m3 |

*A3. Manufacturing*

This module covers the manufacturing of the Dulux Trade Weathershield Quick Dry Exterior Satin and includes all processes linked to production such as storing, mixing, packing and internal transportation. Use of electricity, fuels and auxiliary materials in paint production is taken into account as well.

Data regarding paint production was provided for the manufacturing site where the Dulux Trade Weathershield Quick Dry Exterior Satin is produced: Ashington, UK. Furthermore, the specific transportation distances and transportation modes for raw materials, paint packaging and transportation to customer were collected from the AkzoNobel logistics department. Primary data and site-specific data were retrieved. For electricity sources (100% renewable from wind, including transmission) the Ecoinvent 3.8 dataset was used. For upstream (raw material processes) and downstream processes (application, use, and waste processing) generic data is used when no specific data is obtained.

The construction site data includes lighting, heating, offices, etc. The manufacture of production equipment and infrastructure is not included in the system boundary.

*A4. Transport to Regional Distribution Centre and customer*

All paint containers are transported from the production facility into a distribution centre and then finally to the customer. On average, the transport characteristics for this life cycle stage are the following

| Coatings transport type | Transport from factory to RDC | Transport from RDC to PoS |
|---|---|---|
| Transport Type | Truck | Truck |
| Distance (km) | 350 | 370 |
| Capacity | >32 t, 64% payload | >32 t, 64% payload |
| Bulk density of transported products | 1441 kg/m3 | 1441 kg/m3 |

*A5. Application and use*

This module includes the environmental aspects and impacts associated with the application and of the paint. It is assumed that no energy is required during the application of this paint. The use of paintbrushes and other appliances used during application are not included. There are some raw materials added in the paint formulations which contain small amounts of solvents. The VOC emissions during application of paint are included in this module.

*C2. Transport to incineration or landfill*

This module includes one-way transportation distance of the demolition or sorting site to the dump site.

| End-of-life transport type | Transport to waste processing |
|---|---|
| Vehicle type | Truck 34t-40t payload average fleet |
| Distance | 80 km |
| Capacity utilisation | 60% |
| Bulk density of transported products | 1040 kg/m3 |

C3. Waste processing and C4. Disposal

The end of life stage is encompassed in these modules. It is assumed that paint is used as interior paint and exterior paint. In both cases, it is assumed that part of the paint is lost during application and the rest is applied.

| Classification of paint, based on function | % of sold paint to landfill | % of sold paint to incineration |
|---|---|---|
| Interior Masonry Wall | 88% | 12% |
| Exterior, Trim and other paints | 88% | 12% |

## DECLARATION OF SVHC

None of the substances contained in the product are listed in the “Candidate List of Substances of Very High Concern for authorisation”, or they do not exceed the threshold with the European Chemicals Agency.

## REFERENCES


• EN 15804:2012+A2:2019 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products, of 2019.

• ISO 14040/14044 on Life Cycle Assessments

• Product Environmental Footprint Category Rules - Decorative Paints version 1.0, 2018. Developed by the Technical Secretariat Decorative Paints of the European Council of the Paint, Printing Ink and Artists' Colours Industry.

• Willener, Y, 2022. Personal communication with Yasmine Willener, Commercial Strategy & Planning Project Manager, Akzo Nobel Decorative Paints, UK.

• Thinkstep GaBi Software-System and Database for Life Cycle Engineering. Copyright 1992-2018 ThinkStep AG.

• Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8> [Accessed 21 12 2021.]


## REMARKS

None