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The Norwegian EPD Foundation

## ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025

|                              |                              |
|------------------------------|------------------------------|
| Owner of the declaration     | Fora Form AS                 |
| Program holder and publisher | The Norwegian EPD Foundation |
| Declaration number           | NEPD-1283-413-EN             |
| Issue date                   | 14.03.2017                   |
| Valid to                     | 14.03.2022                   |

### Con II - high backrest , armrest

Product



### Fora Form AS

Manufacturer



**General information**
**Product**

Con II - high backrest , armrest

**Owner of the declaration:**

Fora Form AS  
Anders Utgård  
Phone + 70 04 60 00  
E mail : au@foraform.com

**General Information**

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo  
Phone: +4723088000  
e-mail: post@epd-norge.no

**Manufacturer**

Fora Form AS

**Declaration number:**
**Place of production:**

Mosflatevegen 6154 Ørsta Norway

**This declaration is based on Product Category Rules:**

PCR for seating solution,NPCR 003 extended version 2013, in accordance with recommendations by the norwegian EPD Foundation.

**Management system:**

NS-EN ISO 14001:2004 Certificat No.800406  
NS-EN ISO 9001: 2008 Certificat No.901268

**Declared unit:**

One chair,upholstered with powder coated base , armrest

**Org. No:**

Org No 986 581 421

**Declared unit with option:**

No options

**Issue date:**
**Functional unit:**

Production of one seating solution provided and maintained for a period of 15. years

**Valid to:**
**This EPD has been worked out by:**

The declaration has been developed using Furniture EPD Tool Version 1.2.1, Approval: NEPDT04  
Company specific data collected and registered by:  
**Kåre Sætre**  
Company specific data audited by:  
**Anders Utgård**

**Comparability:**

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

**Year of study:**

2016

**Verification:**

Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14024, 8.1.3. and 8.1.4.

Approved

externally



Mie Vold, Senior Research Scientist  
(Independent verifier approved by EPD Norway)

Håkon Hauan  
Manager EPD-Norway

| Key environmental indicators | Unit               | Cradle to Gate<br>A1-A3 |
|------------------------------|--------------------|-------------------------|
| Global warming               | kg CO <sub>2</sub> | 28                      |
| Total energy use             | MJ                 | 424                     |
| Amount of recycled materials | %                  | 25 %                    |

**Product**

**Product Description and Application**

Con is result of a mini competition where designer Lars Tornøe won. Lars Tornøe wanted the new chair series to be a simplistic contribution to Fora Forms collection. The design is inspired by Japanese armor as well as the art of saddle making. This initiative lays the foundation for a chair series with numerous opportunities to select fabric / leather, various types of base, armrests and backrest height.

**Technical Data**

Total Weight: 6,7 kg / without cardboard  
NS-EN 16139 : 2013 approved

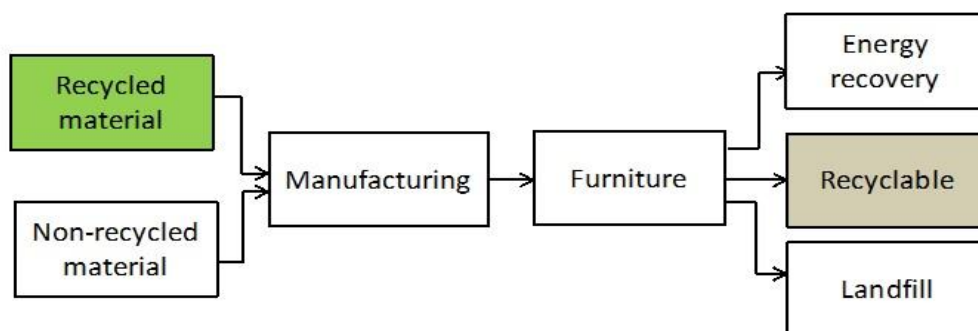
**Market**

Worldwide

**Reference Service Life**

15 years

| Materials     |             |      | Recycled material in manufactured product |      | Recyclable material at end of product life |      |
|---------------|-------------|------|---|------|--|------|
| Unit          | kg          | %    | %   | kg   | %  | kg   |
| Polypropylene | 2,90        | 43 % | 50 %                                      | 1,45 | 100 %                                      | 2,90 |
| Steel         | 1,50        | 22 % | 0 %                                       | 0,00 | 100 %                                      | 1,50 |
| Polyurethane  | 1,00        | 15 % | 0 %                                       | 0,00 | 100 %                                      | 1,00 |
| Textiles      | 0,70        | 10 % | 0 %                                       | 0,00 | 0 %  | 0,00 |
| Aluminium     | 0,40        | 6 %  | 50 %                                      | 0,20 | 100 %                                      | 0,40 |
| Polyethylene  | 0,20        | 3 %  | 0 %                                       | 0,00 | 100 %                                      | 0,20 |
| <b>Total</b>  | <b>6,70</b> |      | <b>25 %</b>                               |      | <b>90 %</b>                                |      |



Product manufactured from 25% recycled material  
At end of life product contains 90% recyclable material

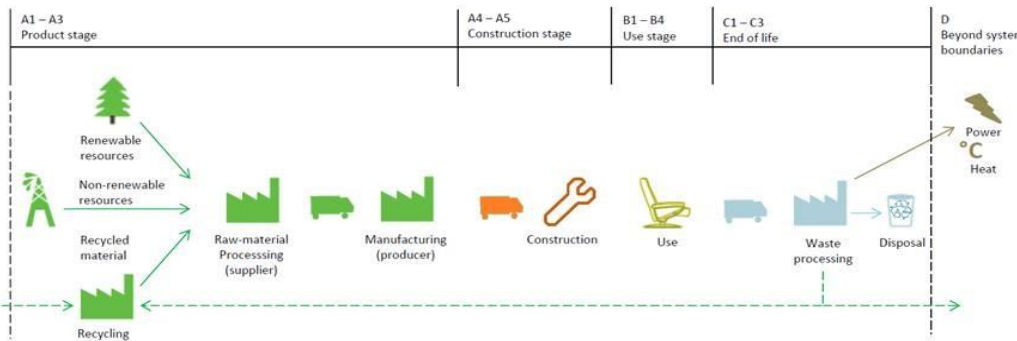
**LCA: Calculation rules**

**Declared Unit**

One chair, upholstered with powder coated base , armrest

**System Boundary**

Life cycle stages included are described in figure and through the corresponding letter and number designations in the



**Data quality**

Specific manufacturing data from 2014 are used. Data from Ecoinvent 3.0.1. and Østfoldforskning databases are used as the basis for raw materials and energy carrier production. See [6].

**Cut-off criteria**

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances

**Allocation**

Where virgin materials are used, emissions and energy consumption connected with extraction and production are included.  
 Where recycled materials are used in the product, emissions and energy consumption related to the recycling process are included.  
 Emissions from incineration are allocated to the product system that uses the recovered energy.  
 Emissions from incineration of waste are allocated to the product system that uses the recovered energy.

**LCA: Scenarios and additional technical information**

Transportation to an average customer in Copenhagen is 1000 km (A4: average European lorry > 32 tonnes)

The use stage (B1) is represented by a scenario and includes vacuum cleaning of textile once a month. The PCR does not provide detailed guidelines for what should be included in the use stage. In the end of life stage, the transport distance for waste to waste processing is 72 km (C1). The reuse, recovery and recycling stage is beyond the system boundaries (D). It is assumed that the solution is dismantled and the materials recycled or combusted according to general Norwegian treatment of industrial waste (see the table below). This calculation includes only CO2 emissions (GWP) in the C-modules. The transport distance to reuse, recovery or recycling varies for each material, but the average distance is 373 km. The vehicles used and associated data are described in detail in [5].

|           | <b>Material recovery</b> | <b>Energy recovery</b> | <b>Disposal</b> |
|-----------|--------------------------|------------------------|-----------------|
| Aluminium | 70,1 %                   | 0,0 %                  | 30 %            |
| Steel     | 70,1 %                   | 0,0 %                  | 30 %            |
| Plastic   | 64,3 %                   | 30,8 %                 | 5 %             |
| Cardboard | 94,5 %                   | 5,5 %                  | 0 %             |

**LCA: Results**

The following information describe the scenarios in the different modules of the EPD.

System boundaries (X=included, MND=modul not declared, MNR=modul not relevant)

| Product stage |           |               | Construction stage |              | Use stage   |        |             |                        | End of life |                  |          | Beyond the system boundaries       |
|---------------|-----------|---------------|--------------------|--------------|-------------|--------|-------------|------------------------|-------------|------------------|----------|------------------------------------|
| Raw materials | Transport | Manufacturing | Transport          | Construction | Maintenance | Repair | Replacement | Operational energy use | Transport   | Waste Processing | Disposal | Reuse-recovery recycling potential |
| A1            | A2        | A3            | A4                 | A5           | B1          | B2     | B3          | B4                     | C1          | C2               | C3       | D                                  |
| x             | x         | x             | x                  | MNR          | x           | MNR    | MNR         | MNR                    | x           | x                | x        | x                                  |

**Environmental impact (INA = Indicator Not Assessed)**

| Parameter | A1      | A2      | A3      | A1-A3   | A4  | B1  | C1  | C2   | C3      | C1-C3 | D        |
|-----------|---------|---------|---------|---------|-----|-----|-----|------|---------|-------|----------|
| GWP       | 19,4    | 0,8     | 7,5     | 27,7    | 0,0 | 0,0 | 0,6 | 10,2 | 6,9E-03 | 10,8  | -5,3     |
| ODP       | 5,8E-07 | 1,6E-07 | 7,5E-07 | 1,5E-06 | 0,0 | 0,0 | INA | INA  | INA     | INA   | -5,4E-09 |
| POCP      | 5,2E-03 | 1,5E-04 | 2,2E-03 | 7,6E-03 | 0,0 | 0,0 | INA | INA  | INA     | INA   | -6,7E-03 |
| AP        | 2,7E-02 | 7,3E-04 | 1,5E-02 | 4,3E-02 | 0,0 | 0,0 | INA | INA  | INA     | INA   | -2,1E-03 |
| EP        | 0,1     | 3,4E-03 | 3,8E-02 | 0,1     | 0,0 | 0,0 | INA | INA  | INA     | INA   | -1,8E-02 |
| ADPM*     | 9,8E-05 | 1,9E-06 | 1,6E-05 | 1,2E-04 | 0,0 | 0,0 | INA | INA  | INA     | INA   | -6,0E-06 |
| ADPE      | 335,3   | 12,9    | 100,2   | 448,4   | 0,0 | 0,0 | INA | INA  | INA     | INA   | -167,3   |

GWP Global warming potential (kg CO2-eqv.); ODP Depletion potential of the stratospheric ozone layer (kg CFC11-eqv.); POCP Formation potential of tropospheric photochemical oxidants (kg C2H4-eqv.); AP Acidification potential of land and water (kg SO2-eqv.); EP Eutrophication potential (kg PO4-3-eqv.); ADPM Abiotic depletion potential for non fossil resources (kg Sb -eqv.); ADPE Abiotic depletion potential for fossil resources (MJ);

\* Some processes use Ecoinvent 3.0.1. and thus data on renewable resources is omitted. The true ADPM, RPEE, RPEM and TPE may be higher than indicated. This issue will be addressed in a new version of Ecoinvent 3, data from which was not available when this declaration was prepared.

**Resource use (INA = Indicator Not Assessed)**

| Parameter | A1    | A2   | A3    | A1-A3 | A4  | B1  | C1  | C2  | C3  | C1-C3 | D      |
|-----------|-------|------|-------|-------|-----|-----|-----|-----|-----|-------|--------|
| RPEE*     | 15,0  | 0,2  | 12,6  | 27,8  | 0,0 | 0,0 | INA | INA | INA | INA   | -0,7   |
| RPEM*     | 1,5   | 0,1  | 4,1   | 5,7   | 0,0 | 0,0 | INA | INA | INA | INA   | -0,5   |
| TPE*      | 16,5  | 0,3  | 16,8  | 33,5  | 0,0 | 0,0 | INA | INA | INA | INA   | -1,2   |
| NRPE      | 257,9 | 13,4 | 124,8 | 396,1 | 0,0 | 0,0 | INA | INA | INA | INA   | -164,7 |
| NRPM      | 111,8 | 0,0  | 0,0   | 111,8 | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0    |
| TNRPE     | 369,7 | 13,4 | 124,8 | 507,9 | 0,0 | 0,0 | INA | INA | INA | INA   | -164,7 |
| SM        | 0,2   | 0,0  | 0,0   | 0,2   | 0,0 | 0,0 | INA | INA | INA | INA   | -1,1   |
| RSF       | 0,0   | 0,0  | 0,0   | 0,0   | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0    |
| NRSF      | 0,0   | 0,0  | 0,4   | 0,4   | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0    |
| W         | 0,0   | 0,0  | 0,4   | 0,4   | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0    |

RPEE Renewable primary energy resources used as energy carrier (MJ); RPEM Renewable primary energy resources used as raw materials (MJ); TPE Total use of renewable primary energy resources (MJ); NRPE Non renewable primary energy resources used as energy carrier (MJ); NRPM Non renewable primary energy resources used as materials (MJ); TNRPE Total use of non renewable primary energy resources (MJ); SM Use of secondary materials (kg); RSF Use of renewable secondary fuels (MJ); NRSF Use of non renewable secondary fuels (MJ); W Use of net fresh water (m3);

**End of life - Waste and Output flow (INA = Indicator Not Assessed)**

| Parameter | A1      | A2      | A3      | A1-A3   | A4  | B1  | C1  | C2  | C3  | C1-C3 | D    |
|-----------|---------|---------|---------|---------|-----|-----|-----|-----|-----|-------|------|
| HW        | 1,9E-03 | 7,6E-06 | 2,7E-04 | 2,1E-03 | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |
| NHW       | 6,1     | 1,3     | 3,7     | 11,1    | 0,0 | 0,0 | INA | INA | INA | INA   | -0,2 |
| RW        | 0,0     | 0,0     | 0,0     | 0,0     | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |
| CR        | 0,0     | 0,0     | 0,0     | 0,0     | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |
| MR        | 0,0     | 0,0     | 0,0     | 0,0     | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |
| MER       | 0,0     | 0,0     | 0,0     | 0,0     | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |
| EEE       | 0,0     | 0,0     | 0,0     | 0,0     | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |
| ETE       | 0,0     | 0,0     | 0,0     | 0,0     | 0,0 | 0,0 | INA | INA | INA | INA   | 0,0  |

HW Hazardous waste disposed (kg); NHW Non hazardous waste disposed (kg); RW Radioactive waste disposed (kg); CR Components for reuse (kg); MR Materials for recycling (kg); MER Materials for energy recovery (kg); EEE Exported electric energy (MJ); ETE Exported thermal energy ( MJ);

## Specific Norwegian requirements

### Electricity

The electricity consumed is Norwegian electric power

### Dangerous Substances

None of the following substances have been added to the product :

Substances on the REACH Candidate list of substances of very high concern ( of 16.06.2014) and substances that lead to the product being classified as hazardous waste. The chemical content of the product complies with regulatory levels as given in the Norwegian Product Regulations

### Indoor Environment

Our furniture doesn't contain any substrates that affect indoor climate.

### Climate Declaration

Not relevant

## Bibliography

[1] NS-EN ISO 14025:2006, Environmental labels and declarations-Type III environmental declarations-Principles and procedures.



[2] NS-EN ISO 14044:2006, Environmental management - Life cycle assessment - Requirements and guidelines

[3] EN 15804:2012 + A1:2013 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

[4] Product category rules (PCR) for preparing an environmental product declaration for:  
Product Group Seating Solution NPCR 003: 2015; Product Group Plate Furniture NPCR 021: 2012

[5] Raadal, H. L., Modahl, I. S., Lyng, K. A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. OR 18.09. ISBN : 978-82-7520-611-2, 82-7520-611-1

[6] Brekke, A., Møller, H., Baxter, J., Askham, C. (2014). Verktøy - miljødeklarasjon for møbel  
Dokumentasjon som grunnlag for verifisering, Ostfold Research

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