Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

NiTo Original Couplings

from

NiTo A/S

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0012310
Publication date:	2024-09-05
Valid until:	2029-09-04
Type of EPD	*EPD of multiple products, based on reference product coupling size 1“* *An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com*

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804+A2 serves as the Core Product Category Rules (PCR) reference packaging based on EF 3.1
Product Category Rules (PCR): *Construction products 2019:14 Version 1.3.4,2024-04-30;*
PCR review was conducted by: *Martin Erlandsson, IVL Swedish Environmental Research Institute, martin. erlandsson@ivl.se*
Life Cycle Assessment (LCA)
LCA accountability: *Augustas Sudaras, Green Survey ApS* www.greensurvey.dk
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Sigita Židonienė, PhD., Vesta Consulting, Sigita@vestaconsulting.lt* Approved by: The International EPD® System
OR
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804+A2, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804+A2 and ISO 14025.

Company information

Owner of the EPD: NiTo A/S
Email: nito@nito.dk
Phone: +45 7452 6363
Description of the organisation:

Description of the organisation: **Nito A/S**, based in **Haderslev, Denmark**, is a company that specializes in providing professional and durable solutions for vital industries. Their product range includes couplings, spray guns, and system solutions for both industrial and sanitary applications. Nito A/S has a long history in offering high quality products and could in 2021 celebrate 125 years anniversary.
Nito is ISO 9001 and ISO 14001 certified.
Product Categories:

1. Couplings: Nito A/S offers a wide selection of couplings, including high-pressure couplings, food-grade stainless steel couplings, and more.
2. Hose Solutions and Clamps: Nito A/S provides hose solutions and clamps for various applications.
3. Spray guns: Nito A/S offers a variety of industrial spray guns suitable for different applications.
4. Foam Sprayers and Containers: Nito A/S offers a range of foam sprayers and containers for cleaning purposes. These include various sizes and colors.
5. Couplings for coolants in plastic moulds. Nito A/S offers a range of couplings and conectors under the brand Dyros for cooling in moulds.

Nito A/S emphasizes quality, functionality, and environmental responsibility in their product offerings.

Name and location of production site(s): H.C.Ørstedsvej 4, 6100 Haderslev, Danmark.

Product information

Product name: NITO ORIGINAL COUPLINGS
Product description: NITO ORIGINAL COUPLINGS are available in three sizes: 1/2", 3/4", and 1", and come in various thread types to accommodate a wide range of thread and hose combinations. These couplings are specifically designed for low-pressure applications. All sizes of couplings are produced using the same manufacturing processes and materials, ensuring consistency across the product range.

For this EPD, the 1" coupling has been selected as the representative product. This choice reflects a conservative approach, as the 1" size uses the most material compared to the smaller sizes. By basing the environmental assessment on this largest product, we provide a worst-case scenario in terms of material use, ensuring that the environmental impact of all other sizes will be lower or equivalent.

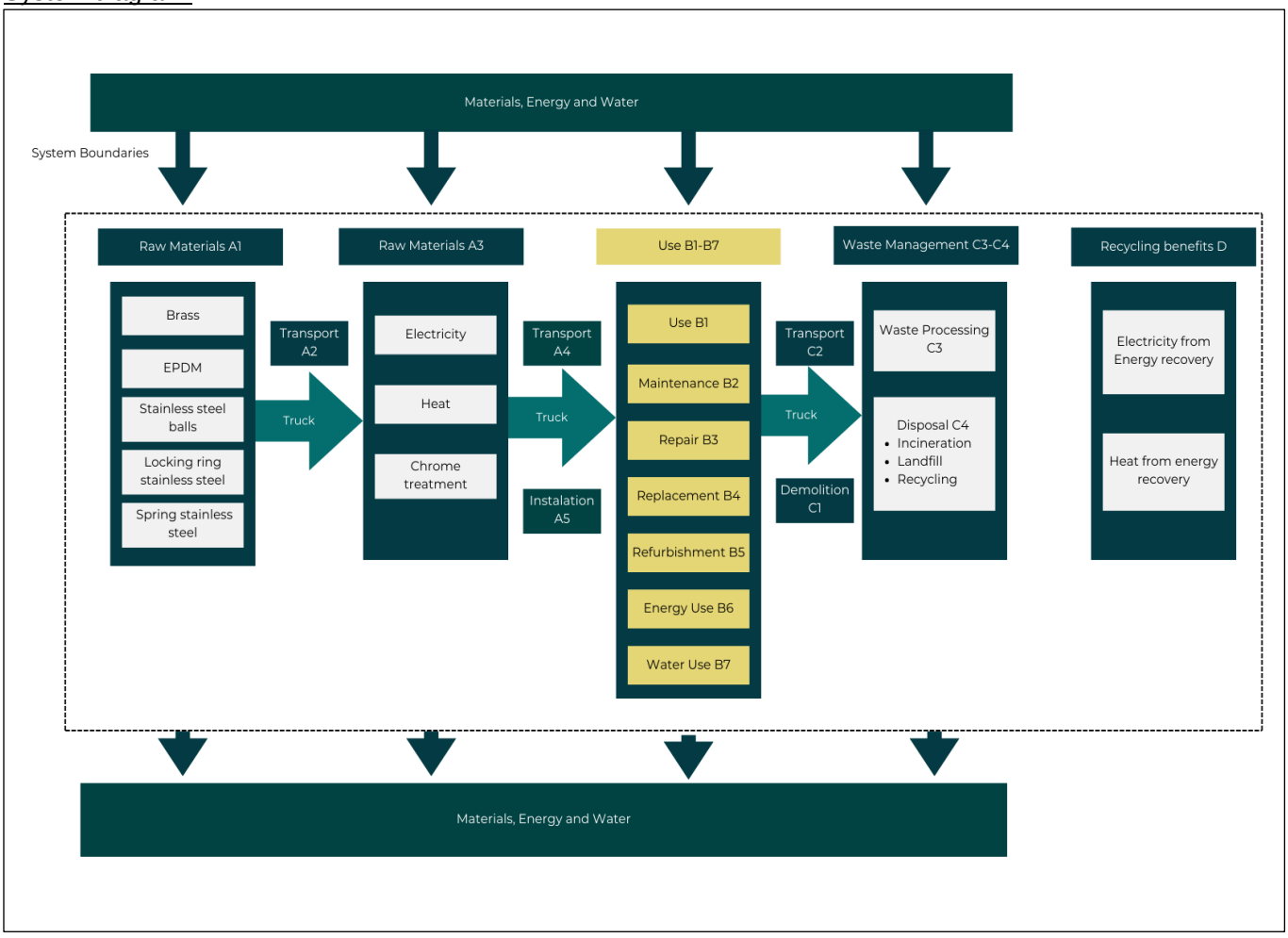
List of the product can be found here at the end of the document

UN CPC code: 4299 – Other metal goods
Geographical scope: Europe

LCA information

Declared unit: 1kg NiTo Orignal Couplings
Time representativeness: 2023
Database(s) and LCA software used: SimaPro 9.5.0.2 and Ecoinvent 3.9.1, ÖKOBAUDAT
Description of system boundaries:
Cradle to gate with options (A1–A3 and A4 and A5). A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing) A4 (Transportation), A5 (Construction Installation) as well as C1 (Deconstruction), C2 (transport at end-of-life), C3 (Waste processing) and C4 (Disposal) in addition, module D – benefits and loads beyond the system boundary is included.

System diagram:



Data quality: The foreground data collected internally is based on yearly production amounts and extrapolations of measurements on specific machines and plants. Overall, the data quality can be described as good. The primary data collection has been done thoroughly.
Cut-off criteria: Life cycle inventory data for a minimum of 99% of total material and energy inputs flows have been included in the life cycle analysis.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	**X**	**X**	**X**	**X**	**X**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**X**	**X**	**X**	**X**	**X**
Geography	EU	EU	DK	EU	DK	-	-	-	-	-	-	-	DK	GLO	DK	DK	DK
Specific data used	4.66%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0			-	-	-	-	-	-	-	-	-	-	-	-	-	-
System boundary (X = included in LCA; MND = module not declared)																	

Note: The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that do not capture all relevant aspects of data quality. The indicator is not comparable across product categories.

Product stage:

A1: This module considers the extraction and processing of raw materials and energy consumption.

A2: The raw materials are transported to the manufacturing plant. In this case the model includes road and sea transportation for the raw materials.

A3: This module encompasses the manufacturing process of NiTo A/S, including product fabrication and packaging. It accounts for energy use and waste generation at the production facility. Key steps include:

- Planning and Preparation.
- Raw Material Handling
- CNC Machining
- Quality Control.
- Post-Machining Processes
- Surface Treatment.
- Final Steps
- Items Ready for Assembly: The items are now ready for the coupling assembly group.

A4: Transportation to the construction site was estimate that on average is 150km.

A5: Instalation of the NiTo A/S – manually

End of Life stage:
C1: Demolition of the building – The deconstruction process does not require any inputs in terms of energy or specialized equipment.
C2. Transport of the discarded product to the processing site. It is estimated that there is no mass loss during the use of the product, therefore, the end-of-life product is assumed that it has the same weight as the declared product. All the end-of-life products are being sent to the incineration according to the Danish waste management infrastructure on average is assumed to be 20 km distance and the transportation method is lorry which is the most common.
C3: **Recycling** - The product and its components are highly recyclable, ensuring that the materials can be effectively reclaimed and reused.
C4: Due to the high recyclability of the couplings, no components are expected to be sent to landfill.
D: Reuse, recovery and/or recycling potential. This module reflects the emissions from the recycling process and the benefits gained from substituting the need for manufacturing new brass components with recycled materials.

Content information

Product components	Weight, kg	Percentage of the product composition - %	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Brass	0,98962	98,62%	90%	0
O-ring EPDM rubber	0,0008	0,08%	0	0
stainless steel balls	0,00528	0,53%	0	0
Stainless stell	0,0043	0,43%	0	0
TOTAL	**1**	**100%**	**89.06%**	0
Packaging materials	**Weight, kg**	**Percentage of the product composition - %**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Carboard	0,038	Kg	3.8%	1,60E-02

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight% of declared product
Lead	231-100-4	7439-92-1	2.5-3.5%

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804+A2

Results per Declared Unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,38E+00	2,77E-02	1,49E-03	0,00E+00	7,39E-02	5,22E-03	0,00E+00	-5,59E+00
GWP-biogenic	kg CO_2 eq.	-2,30E-02	2,54E-05	6,09E-02	0,00E+00	6,77E-05	3,98E-03	0,00E+00	-3,34E-02
GWP-luluc	kg CO_2 eq.	6,34E-03	1,37E-05	5,11E-07	0,00E+00	3,65E-05	1,48E-07	0,00E+00	-1,26E-02
GWP-total	kg CO_2 eq.	2,36E+00	2,78E-02	6,24E-02	0,00E+00	7,40E-02	9,20E-03	0,00E+00	-5,64E+00
ODP	kg CFC 11 eq.	2,22E-08	6,04E-10	5,60E-11	0,00E+00	1,61E-09	1,01E-11	0,00E+00	-6,66E-08
AP	mol H^+ eq.	6,09E-02	6,06E-05	1,17E-05	0,00E+00	1,62E-04	2,25E-06	0,00E+00	-3,98E-01
EP-freshwater	kg P eq.	2,37E-03	1,97E-06	1,71E-07	0,00E+00	5,25E-06	2,16E-07	0,00E+00	-3,17E-02
EP-marine	kg N eq.	3,63E-03	1,53E-05	7,18E-06	0,00E+00	4,08E-05	1,30E-06	0,00E+00	-2,09E-02
EP-terrestrial	mol N eq.	4,27E-02	1,55E-04	5,22E-05	0,00E+00	4,14E-04	9,94E-06	0,00E+00	-2,86E-01
POCP	kg NMVOC eq.	1,45E-02	9,40E-05	1,42E-05	0,00E+00	2,51E-04	2,72E-06	0,00E+00	-8,06E-02
ADP-minerals&metals*	kg Sb eq.	1,28E-03	9,06E-08	3,07E-09	0,00E+00	2,42E-07	5,51E-10	0,00E+00	-5,48E-03
ADP-fossil*	MJ	3,59E+01	3,94E-01	1,22E-02	0,00E+00	1,05E+00	2,85E-03	0,00E+00	-7,06E+01
WDP*	m^3	3,64E+00	1,62E-03	1,34E-03	0,00E+00	4,33E-03	2,60E-04	0,00E+00	-6,36E+00
Acronyms	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 Exceedance; 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 Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

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

Note: it is discouraged to use the results of modules A1-A3 without considering the results of module C when module C is declared.

Disclaimer: The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Additional mandatory and voluntary impact category indicators

Results per Declared Unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,39E+00	2,77E-02	2,56E-03	0,00E+00	7,40E-02	5,28E-03	0,00E+00	-5,62E+00

*This method is based on the final government distribution version of the IPCC report 'AR6 Climate Change 2021.This version of the method excludes CO2 uptake and biogenic CO2 emissions.

Resource use indicators

Results per Declared Unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,40E+00	1,52E-03	1,15E-01	0,00E+00	4,06E-03	2,61E-05	0,00E+00	-2,44E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,40E+00	1,52E-03	1,30E-04	0,00E+00	4,06E-03	2,61E-05	0,00E+00	-2,44E+00
PENRE	MJ	3,90E+01	4,18E-01	7,58E-01	0,00E+00	1,12E+00	3,05E-03	0,00E+00	-7,52E+01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,90E+01	4,18E-01	1,31E-02	0,00E+00	1,12E+00	3,05E-03	0,00E+00	-7,52E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,00E-01
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	5,52E-01	5,67E-05	4,56E-05	0,00E+00	1,51E-04	9,62E-06	0,00E+00	-1,63E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary 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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per Declared Unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4,48E-03	9,86E-06	3,39E-04	0,00E+00	2,63E-05	1,18E-03	0,00E+00	-1,25E-02
Non-hazardous waste disposed	kg	1,11E+00	1,96E-02	1,83E-03	0,00E+00	5,21E-02	4,74E-03	0,00E+00	-2,21E+00
Radioactive waste disposed	kg	1,64E-03	1,29E-07	6,08E-09	0,00E+00	3,45E-07	1,30E-09	0,00E+00	-1,82E-04

Output flow indicators

Results per Declared Unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	4,32E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	3,84E-02	0,00E+00	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Information on biogenic carbon content

BIOGENIC CARBON CONTENT PER DECLARED UNIT		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	0
Biogenic carbon centent in accompanying packagaing	[kg C]	1,60E-02
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Additional environmental information

Manufacturing energy scenario documentation

Energy Source	Method	Kg CO2eq/kWh
Wind Energy	IPCC 2021	5,86E-03

List of the products

Item number for 1/2" Couplings		
52580A8	5349S93	53750A3
52582A3	5354SA3	59520A3
5350093	53600CH	5953LA3
53506A3	53602A3	5960053
5350CA5	5360A53	5960AA3
5350N93	5360BA3	59610A3
5350S93	5360C53	5961GA3
5350VA3	5360DA3	5961MA3
5351S93	5360EA3	5964053
5352093	5361053	59641A3
5352GA3	5361153	5964A53
5352NA3	53611A0	5964AA3
5352RA3	53615A3	59810A3
53530A3	5361A53	53700A3
5353GA3	5361BA3	5371A53
5353NA3	5361GA3	5373053
5353RA3	5361MA3	53740A3
5353SA3	5362053	53750A3
535G6A3	53621A3	59520A3
5750GHT	5364053	5953LA3
59500A3	5364A53	5960053
59506A3	5364BA3	5960AA3
5950CA3	5364N53	59610A3
5950LA3	53650A3	5961GA3
5950NA3	5366AA3	5961MA3
5950S93	53670A3	5964053
5950SA3	53690A3	59641A3
5951SA3	5369BA3	5964A53
5952GA3	5369DA3	5964AA3
5953S93	53700A3	59810A3
53433A3	5371A53	59820A1
53480A8	5373053	59820A3
53490A8	53740A3	59GHTA3

Item number for 3/4" Couplings		
6150SA8	61515G3	6364053
61514G3	61640A8	63642A3
615S4G3	61650A3	6364AA3
6350093	6360053	63670A3
63506A3	6360A53	63690A3
6350NA3	6360B53	63720A3
6350S93	6360CA3	6960053
63530A3	6361053	69600A3
6353SA3	6361AA3	63642A3
635C6A3	6362AA3	6364AA3
69500A3		

Item number for 1" Couplings		
73500A3	73530A3	73600A3
7350SA3	7353SA3	7360BA3
7350ZA3	73530A3	73610A3
		73640A3

References

General Programme Instructions of the International EPD® System. Version 4.0.
ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations Principles and procedures.
ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.
ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines. EN 15804+A2 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.
PCR 2019:14 Construction products (version 1.3.4) date: 2024-04-30
NiTo A/S original water couplings (based on representative product NiTo A/S Original water coupling size 1“) background report. 2024 September

EPD®