DUCOR
Petrochemicals

Ducor Petrochemicals BV

Merseyweg 24
3197 KG Botlek RT
Havennr 5210
The Netherlands

T +31 (0)181 24 70 00
sales@ducorchem.com

www.ducorchem.com

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CARMEL OLEFINS LTD

WWW.DUCORCHEM.COM

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WHAT A GREAT TIME TO CREATE PRODUCTS!

Dear Customer,

You can feel the excitement that comes with innovation. We at Ducor Petrochemicals have enjoyed that feeling as we have recently expanded our R&D and technical expertise capacity to give our customers additional insight into developing innovative products.

Our production site in Rozenburg, the Netherlands, produces 180,000 metric tons of polypropylene per year (using Novolen gas phase technology). In fact, together with the Bazan Group, we have acquired a sustainable market share in the various polypropylene and low-density polyethylene market segments. We attribute our success to our interest in working directly with our customers to create high-quality, customized products.

We want to be your preferred partner among the many available polyolefin producers, too. We can do that by focusing on your needs. Your product is made not only to your specifications, but also with an eye to creating added value. With our technological know-how, we can make recommendations that can save costs and increase your production capacity.

I speak from all of us at Ducor Petrochemicals when I say we are excited to work with you on your next innovative product.

Ann Geens,
Managing Director

"To be a reliable source of state of the art polypropylene and low density polyethylene, making the difference via a strong focus on customer satisfaction."

LET'S TALK YOUR PROJECT THROUGH

Sometimes a simple face-to-face conversation is all it takes to spark ideas. We'd love to hear about your needs and see how we can make your product a reality. It's one of the many ways Ducor Petrochemicals takes time to focus on the customer experience.

WE ASSIST IN CO-CREATION

We're here to help you make efficient and cost-effective choices. With our technical know-how integrated across R&D and sales departments, Ducor is able and committed to delivering high-quality solutions.

INNOVATION OUT IN THE MARKETPLACE IS WHAT COUNTS

At Ducor Petrochemicals, we believe in working with our customers to the last details. We know that quality products make the difference and that innovation only pays off when it's on the shelf.

What makes Ducor a reliable partner

RELIABILITY

In the deadline and profit-centric business world, Ducor offers manufacturers peace-of-mind. Multiple sources of monomers, supplied by sea or pipeline, and sufficient raw material basis (90% contractual supply) makes Ducor a reliable partner for plastics. Three production lines can convert easily from one line to the other, meaning if one line is down, two others can still produce. Even more cost-effective, after a run of 100 tons, its still relatively simple to change products.

FLEXIBILITY

Ducor's flexibility is not exclusive to the big players on the market. We serve 3,000 smaller customers a year because we are willing to perform run lengths under 500 tons. We're not afraid of quick turnaround, either—it is possible to receive an order on one day, and complete it two whole business days later. Three production lines make it possible to produce three different products at a time and switch lines as needed.

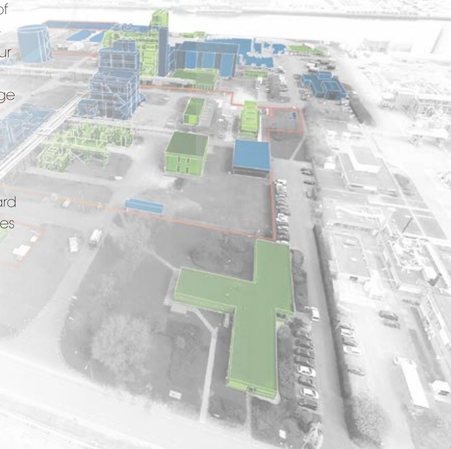
INNOVATION

Deliberately structured to facilitate innovation, Ducor follow the market closely so we can adapt and ensure product cycles stay fast. Our Sales and Operations are housed together on site so they can address needs from the first contact. Knowledge is highly-valued; we work hard to maintain an extensive network of a well-trained, insightful and up-to-date workforce and have an in-house consultant on our team. The investment in expertise and R&D extends beyond our European borders. A large R&D department is located in our sister company in Israel as well.

At Ducor, we're ready and able to take your plastics needs to the next level. We look forward to getting your ideas off the lines and into sales as efficiently and effortlessly as possible.

STRATEGIC LOCATION

Since Ducor is strategically located adjacent to the two major world harbors, Rotterdam and Antwerp. Several pipelines are connected at this location making it a logistic hub operating right in the heart of Europe.



IMAGINE WHAT WE CAN MAKE WITH PLASTIC

With R&D know-how and a service-oriented focus, Ducor Petrochemicals is a trusted partner for custom-made products created with polypropylene — but more importantly, Ducor is a resource for imagining better products with plastic.

Great ideas start with a phone call. We sit together and dream up the best solutions for our customers and their production processes. Because we constantly innovate, Ducor can think alongside its partners to create advanced products that anticipate market needs.

For example, phthalate-free products such as DuClear and DuPure expand customer options in an increasingly phthalate sensitive marketplace. An ability to conform to health and safety regulations prescribed by authority agencies makes Ducor a reliable partner. Our extensive line of vegetable-sourced materials gives companies more options and appeal.

Saving time and money is also an advantage. Ducor's PPH high-speed injection molding grades contain nucleation additives which allow fast cycle times. Quick delivery–with no compromise on quality–means a short time-to-market and ultimately better market performance.

We want to be more than just a supplier. For us, personalized service and technological insight are essential to product development solutions of the highest caliber. Our location in the heart of Europe makes Ducor Petrochemicals easy for customers to reach, too. Come talk to us and let's see what we can create together.

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DuPure Polypropylene
Homopolymers

FEATURES

- DuPure products are produced with **a phthalate free catalyst system.**
- Discover **Ducor's new developed reactor grades.**
- DuPure **products exhibit improved organoleptic properties.**
- DuPure Block Copolymer range offers improved impact/stiffness balance.
- Discover **Ducor's new developed PPC high speed thin-walled injection moulding grades** containing nucleation additives allowing fast cycle times and high demoulding temperatures.

ABBREVIATIONS

N	Nucleated
C	Clarified
AS	Anti-electrostatic
IM	Injection moulding
CF	Continuous filaments
BCF	Bulked continuous filaments
AG	Anti-gas fading

	Test Method	DuPure E50	DuPure G86E	DuPure G72TF	DuPure G72	DuPure L76A	DuPure L50	DuPure L50E	DuPure R50	DuPure R87E	DuPure R76	DuPure T76	DuPure T50	DuPure T88E	DuPure U76A	DuPure U76AV	DuPure U76	DuPure W76	DuPure Y76	DuClear U73A
Melt Flow Rate 230°C / 2.16 (g/10min)	ISO 1133	2.1	3	3.1	3,1	5.5	6	7,5	12	12	12	23	25	25	48	48	50	75	100	48
Tensile Modulus 1 mm/min (Mpa)	ISO 527-2	1450	1500	1850	2050	1600	1500	1500	1550	1550	2000	2000	1500	1500	2000	2000	2000	2000	2000	1900
IZOD Impact Strength notched 23°C (kJ/m²)	ISO 180/1A	4,5	4,0*	4,0	5,0	3,5	3,5	3,5*	3	3*	2,8	2,7	3	2,5*	3,0	3,0	2,5	2,0	2,0	11
Melting Point DSC (°C)	ISO 3146	163	163	165	165	163	163	163	163	163	165	165	163	163	163	163	163	163	163	2.2
Vicat Softening Temperature 10N (°C)	ISO 306	154	154	156	158	154	154	154	154	154	158	157	154	154	157	157	157	157	157	163
Vicat Softening Temperature 50N (°C)	ISO 306	90	90	94	100	94	90	90	90	90	102	100	90	90	100	100	100	100	100	155
Density (g/cm3)	ISO 1183	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91
Additivation				N, C, AS	N, C, AS	N, AS					N	N		AG	N, AS	N, AS	N	N	N	C, N, AS
Application		Extrusion, IM	Thermoformed parts, tape yarns, monofilaments, strapping	Thermoformed packaging	Thermoformed packaging	Thermoformed packaging	IM	Cast films, OPP films, Thermoformed parts, Tape yarns, Monofilaments, Strapping	IM	Staple Fibres, CF-yarns, High-resilience BCF	Furniture	Furniture, Thin-walled packaging and houseware	IM	CF, BCF, Fine denier staple fibres	Thin-walled packaging	Thin-walled packaging	Thin-walled packaging	IM, Thin-walled packaging, Compounding	IM, Thin-walled packaging, Compounding	Thin-walled packaging with **high transparency**

* Charpy Impact Strength, notched ISO 179/1eA 23°C (kJ/m²)

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DuPure Polypropylene
Block Copolymers

FEATURES

- DuPure products are produced with **a phthalate free catalyst system.**
- Discover **Ducor's new developed reactor grades.**
- DuPure **products exhibit improved organoleptic properties.**
- DuPure Block Copolymer range offers improved impact/stiffness balance.
- Discover **Ducor's new developed PPC high speed thin-walled injection moulding grades** containing nucleation additives allowing fast cycle times and high demoulding temperatures.

ABBREVIATIONS

N	Nucleated
AS	Anti-electrostatic
IM	Injection moulding
NB	No Break
CR	Controlled rheology

	Test Method	DuPure TE76	DuPure SH50	DuPure SL50	DuPure SM76A	DuPure TM76	DuPure SR76	DuPure SR79	DuPure TR76V	DuPure ST76V	DuPure TT79V	DuPure SU76A	DuPure TU76V	DuPure SW76AV
Melt Flow Rate 230°C / 2.16 (g/10min)	ISO 1133	2	4.2	6	7.5	7.5	15	15	15	25	25	48	48	75
Tensile Modulus 1 mm/min (Mpa)	ISO 527-2	1100	1200	1250	1400	1150	1400	1500	1000	1200	1060	1400	950	1350
Charpy impact strength unnotched (kJ/m2) 23°C	ISO 179/1eU	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
0°C		NB	140	160	120	NB	100	100	NB		190	100	NB	95
- 20°C		NB	80	110	90	NB	50	50	190		160	75	150	71
- 30°C		NB	70	95	80	170	45	45	140	67		65	125	60
Charpy impact strength notched (kJ/m2) 23°C	ISO 179/1eA	60P	10.5	7.5	9	45P	5	6	43P	5	17	6.5	20P	6.0
0°C		12	5.5	4	4	9	3	3	9		8	4.0	9	4.0
- 20°C		8	4	3	3.5	7	2.5	2.5	7		6	3.2	4.5	3.0
- 30°C		7	2.5	2.5	2.5	6	2	2	6.5	2.5		3.0	4	2.6
IZOD Impact Strength notched 23°C (kJ/m²)	ISO 180/1A	50P	10.5	7.5	7.5	45P	5	5	30	5	15	5.0	18P	5.0
0°C		13	4	4	4.5	8	3	3	7		8		9	
- 20°C		9	3	3	3.5	6	2.5	2.5	5		5		5.5	
- 30°C		7	2	2.5	2.5	5	2	2	4	2.8		3.0	4.5	3.0
Melting Point DSC (°C)	ISO 3146	163	163	163	163	163	163	163	163	163	165	163	163	163
Vicat Softening Temperature 10N (°C)	ISO 306	148	150	151	151	144	151	150	142	151	145	151	142	151
Vicat Softening Temperature 50N (°C)	ISO 306	60	71	66	68	58	68	70	56	68	58	70	56	70
Density (g/cm3)	ISO 1183	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Additivation					N, AS		N	N	CR	CR, N	CR, N	N, AS		CR, N, AS
Application		Crates & containers	Crates, containers & closures	IM	Cylindrical containers	Crates & containers, luggage, housewares	Housewares, cylindrical containers and crates, furniture	Housewares, cylindrical containers and crates, furniture	Thin-walled packaging, buckets, housewares	Closures, housewares, IM	Thin-walled packaging, buckets, housewares	IM, packaging	Thin-walled packaging, housewares	IM, packaging

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DuClear Polypropylene
Random Copolymers

FEATURES

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ABBREVIATIONS

N	Nucleated
C	Clarified
AS	Anti-electrostatic
CR	Controlled rheology

	Test Method	DuClear CE85B	DuPure QE50E	DuClear QG80A	DuClear QR80A	DuClear QT80A	DuClear QU80A	DuClear QW80AV	DuClear QY80AV
Melt Flow Rate 230°C / 2.16 (g/10min)	ISO 1133	1.8	1.8	6	11	25	40	80	100
Tensile Modulus 1 mm/min (Mpa)	ISO 527-2	950	900	1450	1100	1100	1100	1100	1100
Haze 1mm plaque (%)	ASTMD1003	10		11	8	8	8	8	8
IZOD Impact Strength notched 23°C (kJ/m²)	ISO 180/1A	28*	7.5	5*	4.5	5.5	5.0	4.0	3.8
Melting Point DSC (°C)	ISO 3146	145	142	155	151	151	151	151	151
Vicat Softening Temperature 10N (°C)	ISO 306	130		143	130	130	130	72	72
Density (g/cm3)	ISO 1183	0.91	0,91	0,91	0.91	0.91	0.91	0.91	0.91
Additivation		C		C, AS	C, AS	C, AS	C, AS	CR, C, AS	CR, C, AS
Application		Blow moulded bottles for consumer goods & bottles for industrial use	Blow moulding applications, food packaging film, thermo-formed food containers	High-transparence thermoformed food packaging, ready meal trays, drinking cups	High-transparency houseware, caps & closures, packaging	High-transparency thin-walled packaging, food containers, boxes & houseware	High-speed injection moulding, thin-walled packaging, containers and houseware	High-speed injection moulding, thin-walled packaging, containers and houseware	High-speed injection moulding, thin-walled packaging, containers and houseware

* Charpy Impact Strength, notched ISO 179/1eA 23°C (kJ/m²)

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Specialties Polypropylene Ducor

Non Pelletized Polypropylene Ducor

	Test Method	DuClear CE85B	DuPure QW76AV
Melt Flow Rate 230°C / 2.16 (g/10min)	ISO 1133	1.8	75
Tensile Modulus 1 mm/min (Mpa)	ISO 527-2	950	1450
Haze 1mm plaque (%)	ASTMD1003	10	50
IZOD Impact Strength notched 23°C (kJ/m²)	ISO 180/1A	28*	3.8
Melting Point DSC (°C)	ISO 3146	145	154
Vicat Softening Temperature 10N (°C)	ISO 306	130	145
Density (g/cm3)	ISO 1183	0.91	0,91
Additivation		C	N
Application		Blow moulded bottles for consumer goods & bottles for industrial use	thin-walled injection moulding, compounding

* Charpy Impact Strength, notched ISO 179/1eA 23°C (kJ/m²)

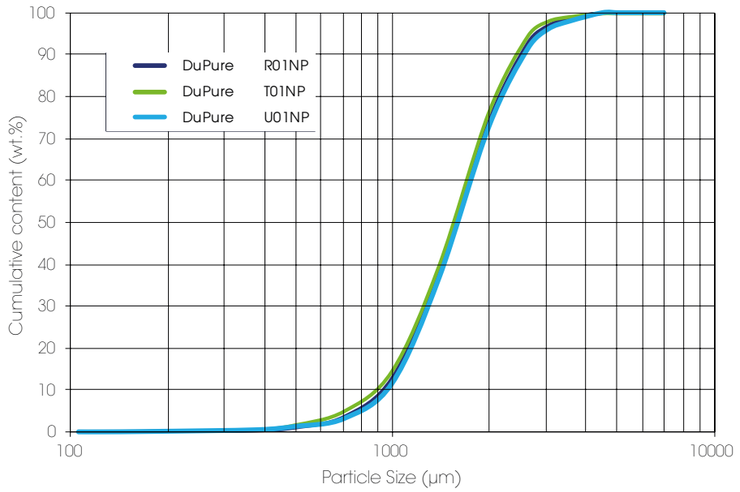
ABBREVIATIONS

N Nucleated
C Clarified
AS Anti-electrostatic
CR Controlled rheology

	Test Method	DuPure G01NP	DuPure R01NP	DuPure T01NP	DuPure U01NP
Melt Flow Rate 230°C / 2.16 (g/10min)	ISO 1133	3	12	25	50
Tensile Modulus 1 mm/min (Mpa)	ISO 527-2	1600	1600	1600	1600
Melting Point DSC (°C)	ISO 3146	163	163	163	163
Density (g/cm3)	ISO 1183	0.91	0.91	0.91	0.91
Additivation					
Application		Compounding, Masterbatches	Compounding, Masterbatches	Compounding, Masterbatches	Compounding, Masterbatches

* Due to polymer concept a long shelf life is guaranteed.

PARTICLE SIZE DISTRIBUTION



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Specialties Polypropylene Capilene

	Test Method	Capilene CE71E	Capilene CL50E	Capilene MT34EC	Capilene CT80A	Capilene CT71A	Capilene CU71A	Capilene CE80B	Capilene MU 32EC	Capilene W 50 LE
Melt Flow Rate 230°C / 2.16 (g/10min)	ISO 1133	1.8	6	25	25	25	35	1,8	29	55
Flexural Modulus 5 mm/min (MPa)	ISO 178	850	450	1000	900	850	950	900	1100	1400
Haze 1mm plaque (%)	ASTMD1003	200	35		12	30	30	15		
IZOD Impact Strength notched 23°C (kJ/m²)	ISO 180/1A	55	15	3	18	18	10	50	3	2,5
Vicat Softening Temperature 10N (°C)	ISO 306	131		126	131	129	129	131		
Density (g/cm3)	ISO 1183	0.9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9
Application		Extrusion blow moulding of clear containers, sheet extrusion, thermoforming, corrugated sheets, profiles and films	Cast film, compounding, injection and thermoforming	Extrusion coating	Thin-walled packaging, clear containers for deep-freezer storage	Thin-walled packaging, containers, houseware, caps & closures, pails and boxes, appliances & toys	Thin-walled packaging, containers, houseware, caps & closures, pails and boxes, appliances & toys	EBM of clear containers for detergents and cosmetics, sheet extrusion, thermoforming, corrugated sheets, profiles and films.	Coating and lamination of paper, paperboards, plastic films, woven and nonwoven polypropylene based fabrics.	multi-cavity injection moulding, household articles, crates and containers. It is also intended for use in automotive applications, including interior trims, requiring low emissions of volatiles.

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Low Density Polyethylene

Ducor Petrochemicals offers a range of **low density polyethylene grades** with excellent properties for the most common processing techniques in **film extrusion.**

We market our LDPE products under the tradename **Ipethene** and the offered range fully meets with the requirements of the **West-european market.**

In our assortment we also offer grades with an **additivation package** for the production of **stretch, blown and shrink** films as well as for **high speed extrusion coating.**

	Test Method	Ipethene 111	Ipethene 320	Ipethene 470	Ipethene 670
Melt Flow Rate 190°C / 2.16 (g/10min)	ISO 1133	0.7	2	4.5	7.5
Density (g/cm3)	ISO 1183	0.92	0.92	0.917	0.917
Application		Film-extrusion	Blown & cast film, injection moulding	Extrusion coating, master-batch	Extrusion coating, master-batch

DUCOR Petrochemicals