“the future of PET”
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Foreword

“Through our dedication to PET packaging and the application of advanced technologies, OCTAL is providing customers with a product that magnifies the mechanical, optical and environmental advantages of PET, as well as supplying the capacity and logistics necessary to sustain organic market growth and facilitate wholesale conversion from less efficient materials”
FOREWORD

OCTAL (SAOC FZC) was established in 2006 to meet the converging trends in clear rigid packaging and environmental goals making PET the format of choice across a wide range of packaging applications for foods and consumer products.

OCTAL has become the recognized leader in PET and the industry reference for superior product performance through continual investment and commitment to improve our products and services. With a total investment set to grow to US$1.5 billion, it is the largest PET sheet manufacturer in the world and the Middle East’s largest producer of PET resin. With a total of four production facilities its output has now increased to 1 million tons of PET resin and PET sheet per annum.

Nicholas P. Barakat
Chief Executive Officer
OCTAL (SAOC FZC)

OCTAL is a technology-driven and knowledge-based company and is setting the global standards for sustainability and environmental innovation through the application of pioneering technology which meets customers’ demands for high quality, sustainable products. DPET™ by OCTAL is the first and only direct-to-sheet polyester sheet in the world manufactured with our patented technology. Our high performance DPET™ sheet and resin products offer improved waste and cost reduction benefits, increased productivity for thermoformers and unmatched environmental advantages.

NEW PRODUCT APPLICATIONS

OCTAL’s focus on PET responds to converging global trends of consumer lifestyles that increasingly demands convenience packaging and the growing need for environmentally friendly products with improved economics throughout the value chain. PET is unique in its value as a clear rigid packaging material possessing an attractive combination of mechanical and optical properties that make it the preferred material for packaging liquid, food and consumer products. We have the production capacity to lead wholesale conversion of global product lines to DPET™ packaging.

ENVIRONMENTAL EXCELLENCE

OCTAL continually strives to introduce more environmentally friendly production methods and to practice responsible stewardship of natural resources. When compared to traditional plants, OCTAL’s PET resin uses 63% less energy and DPET™ sheet uses 65% less energy. 100% of our energy needs are derived from clean burning natural gas. Our on-site high efficiency burners consume 20% less gas than traditional PET plants and our integrated facility recycles waste during the manufacturing process. Because of this OCTAL’s DPET™ branded PET sheet leads with the smallest carbon footprint of any comparable PET sheet available.

OUR VALUES

At OCTAL, our commitment to ethical conduct and social responsibility is strongly aligned with our vision of being a leader in PET packaging. Our vision drives us to continuously challenge ourselves to deliver social, economic and environmental benefits to our stakeholders and to the communities in which we operate. Environmental awareness is the responsibility of all employees at OCTAL and internal initiatives are in place to accomplish our environmental goals. OCTAL supports a variety of social initiatives ranging from local and global charity donations to the training and development of the local workforce.

I thank you for your trust in the future of OCTAL.

Nicholas P. Barakat
Chief Executive Officer
OCTAL (SAOC FZC)
Vision
Global leader in PET Packaging through excellence of product and sustainability methods.

Mission
By anticipating and exceeding our customers’ growing requirements and optimizing the PET packaging value chain, OCTAL expects to significantly enhance the future of clear rigid packaging and achieve strong profitability, sustained growth and superior returns for its customers and shareholders.

Sustainability commitment
OCTAL will bring to market the most sustainable PET packaging materials available. We are dedicated to ongoing improvement in our sustainability scorecard and, through product quality, will enhance the environmental performance of our customers’ processes and the final product, improving the well-being and quality of life of all those touched by what we produce.
EXCELLENCE THROUGH SUSTAINABILITY & INNOVATION

Progressive natural resource management is at the core of OCTAL’s DNA. This means not only uncompromised attentiveness to the benefits of conservation today, but also a dedication to future success based on unwavering, fundamental conviction that only through environmental sustainability can a company expect to prosper in tomorrow’s world.

To date, OCTAL has invested US$ 600 million in environmental sustainability to produce the lowest carbon footprint PET sheet products in the world. We have successfully eliminated five energy intensive stages of the conventional sheet production process, reducing 65% of energy consumption compared to conventional APET with all the energy requirements derived from clean combustion natural gas. The specially adapted burners consume up to 20% less gas than conventional PET production facilities. DPET™ boasts 25% lower carbon footprint than conventional APET as certified by Renewable Choice Energy and Intertek Expert Services. The reduction per ton is equivalent to driving 4,315km in an average passenger vehicle.

In a recent study of the annual energy consumption using MTR technology, Intertek certified that OCTAL consumes 63% less grid electricity and 23% less heat energy for the production of PET resin when compared to conventional bottle grade resin. A total of 51,088,591.26 Kg of CO2 was reduced for the entire 2010 production which translates to flying a full plane of 320 passengers around the world approximately 39 times.

With innovation at the heart of our sustainability agenda, the company’s facility in the Salalah Free Zone also features a greenbelt, solar-powered lights in the parking lot and the latest in high efficiency lighting. All of these efforts are further contributing to greener operations, establishing OCTAL as a recognized leader in responsible stewardship of natural resources which is inspired by a culture of metrics, transparency and accountability.

OCTAL is also one of the founding members of the renowned Sustainability Consortium at the University of Arkansas, USA. The independent organization of diverse global participants aims to contribute to a more sustainable world through better products and consumption. As active members of the consortium’s packaging group whose participants include international heavy-weight conglomerates like Walmart, P&G and Unilever to name a few, we aim to develop tools for measuring carbon impact in packaging of food and other consumer products.

ENVIRONMENTAL ADVANTAGES OF DPET™

OCTAL’s DPET™ is the first and only direct-to-sheet polyester sheet in the world. Developed and introduced to the market in 2008, OCTAL’s unique direct-to-sheet process, DPET™ technology, eliminates five energy intensive stages of the conventional sheet production process (pelletizer, SSP, compactor, dryer and extruder).

This exclusive technology produces PET sheet characterized by enhanced optical and mechanical properties, increased productivity for thermoformers, and environmental advantages.
ENERGY EFFICIENCY

OCTAL’s unique direct-to-sheet technology dramatically decreases the energy required to produce DPET™ sheet while significantly increasing resource efficiency. Scope 1 and Scope 2 emissions are decreased by 69% and 48% respectively and require 65% less grid electricity per KG of sheet when compared to traditional APET sheet manufacturing. OCTAL reduced the energy requirements by 6% per ton of production from 2009-2010.

\[
\begin{array}{ccc}
\text{APET Sheet} & 0.387 & 0.499 \\
\text{DPET™} & 0.121 & 0.259 \\
\text{(Kg CO₂e/Kg produced)} & 2.505 & 2.390 \\
\text{Scope 1} & \text{Scope 2} & \text{Scope 3}
\end{array}
\]

\* Scope 1 - Emissions from sources that are owned or controlled by the company.
\* Scope 2 - Emissions from the generation of purchased electricity by the company.
\* Scope 3 - Indirect emissions generated by the supply chain.

WASTE REDUCTION

OCTAL’s integrated manufacturing facility collects and reintegrates 100% of its internally generated side trim and offers customers recycling of the skeletal waste generated during the thermoforming process. OCTAL has installed 20,000 tons of rPET production capacity. From 2009 to 2010 OCTAL reduced PTA and IPA waste by 57% per ton of production.

\[
\begin{array}{c}
\text{Electricity} \\
5% \\
\text{Water} \\
10% \\
\text{IPA + PTA} \\
57% \\
\text{Waste Reduction}\*
\end{array}
\]

\* PTA and IPA waste was 31 MT in 2009 and 18 MT in 2010.

WATER RESPONSIBILITY

OCTAL has minimized its impact on local water resources by investing in the development of local pipeline infrastructure to a nearby municipal water plant. OCTAL uses 100% municipal wastewater and filters it through reverse osmosis technology and sand filtration systems. 80% of the water used is recovered, retreated using the same technology, and either fed back into the manufacturing system or used to irrigate a newly created green belt on the plant’s premises. OCTAL has also installed a rainwater harvesting system to collect rainwater onsite and generate 150,000 M³ as part of the PET manufacturing process. Between 2009 and 2010 OCTAL reduced the amount of water required per metric ton of production by 10%.

\[
\begin{array}{c}
\text{2009} \\
1.45 \\
\text{2010} \\
1.16 \\
\text{1.55} \\
\text{1.6}
\end{array}
\]

<p>| | | | |</p>
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>1.13</td>
<td>1.35</td>
<td>1.4</td>
<td>1.45</td>
</tr>
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</table>
CARBON FOOTPRINT STUDY*

A study conducted by Renewable Choice Energy and Intertek Expert Services comparing the carbon footprint of DPET™ with competing materials, concluded that the lifecycle carbon footprint of DPET™ is significantly lower than competing products.

The below table compares downgauged DPET™ sheet with non-downgauged alternative plastics with a variety of density values.

NON-DOWNGAUGED ALTERNATIVE PLASTICS

<table>
<thead>
<tr>
<th>Material</th>
<th>Carbon Footprint (Kg CO₂ [e])</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kg Thermoformed PLA sheet</td>
<td>5.1</td>
</tr>
<tr>
<td>1 kg Thermoformed PS sheet</td>
<td>5.0</td>
</tr>
<tr>
<td>1 kg Thermoformed HIPS sheet</td>
<td>5.0</td>
</tr>
<tr>
<td>1 kg Thermoformed APET sheet</td>
<td>4.1</td>
</tr>
<tr>
<td>1 kg 'Non-zero' thermoformed APET (50%) sheet</td>
<td>3.9</td>
</tr>
<tr>
<td>1 kg Thermoformed PVC sheet</td>
<td>3.4</td>
</tr>
<tr>
<td>1 kg Thermoformed PP sheet</td>
<td>3.4</td>
</tr>
<tr>
<td>1 kg 'Zero' thermoformed APET (50%) sheet</td>
<td>3.0</td>
</tr>
<tr>
<td>1 kg 'Zero' thermoformed APET (45%) sheet</td>
<td>3.1</td>
</tr>
<tr>
<td>886g Thermoformed DPET™ sheet (11.2% downgauged)</td>
<td>3.1</td>
</tr>
</tbody>
</table>

DPET™ HAS...

- lower carbon footprint than conventional APET
- lower carbon footprint than conventional PLA
- lower carbon footprint than conventional HIPS
- lower carbon footprint than conventional PS
- lower carbon footprint than conventional PVC
- lower carbon footprint compared to 'non-Zero' APET at 50% equal carbon footprint compared to 'Zero' APET at 43%

*The data from this study is based on sheet manufactured at OCTAL's facility in Oman and shipped to Europe and the competing material was produced in the EU. A carbon impact study for DPET™ shipped to the US is also available.
OCTAL’S COMMITMENT TO SUSTAINABILITY

OCTAL’s purpose-designed production facility exceeds environmental standards and is significantly more efficient than conventional virgin PET sheet and resin plants. Through the application of the most advanced technologies, OCTAL has set new global environmental benchmarks for both product and environmental excellence.

OCTAL’S ENVIRONMENTAL LEADERSHIP

1. Increased Manufacturing Efficiencies
2. Optimized Product Yield
3. Energy and Resource Efficiency
4. Water Responsibility
5. Waste Reduction
6. Lower Carbon Footprint

EMISSIONS INVENTORY

OCTAL conducted a corporate greenhouse gas (GHG) inventory (Scope 1 and Scope 2) in accordance with the internationally recognized GHG Protocol. By conducting a rigorous GHG inventory, OCTAL has set emissions reduction targets, identified significant opportunities for reduction and can track progress over time.

MANUFACTURING INNOVATIONS

OCTAL has set the standard for manufacturing and process efficiencies, which have resulted in net environmental impact reductions. The first company in the world to implement the direct-to-sheet technology, OCTAL’s resin-making and DPET™ manufacturing processes require significantly less energy inputs than traditional PET manufacturing systems. OCTAL’s plant uses 65% less grid electricity to manufacture DPET™ sheet and 63% less grid electricity + 23% less heat energy for resin.

OPTIMIZED FACILITIES

OCTAL’s state-of-the-art facility incorporates the latest in efficient building design featuring high efficiency lighting, solar panels and natural lighting to maximize visual comfort and minimize energy use.
PET Resin

OCTAL’s PET resin introduces new architectural technology and extends superior strength and mechanical properties to the PET market. The spherical shape of our resin allows for more even heat dissipation and eliminates surface dust formation.

Our unique resin manufacturing process eliminates an entire step from the recognized standard and brings advantages such as enabling customers to operate with a faster cycle time thus reducing electricity requirements and lowering carbon footprint. It also provides exceptional gloss, clarity and consistency for all resin grades compared to traditional PET resins.

RESIN FEATURES

- **SUPERIOR MECHANICAL PROPERTIES**
  - Faster cycle times
  - Spherical shape
  - High dimensional strength
  - Consistent I.V.
  - Low degree of crystallinity
  - Lower thermal heat stress
  - Less polymer degradation

- **ENHANCED OPTICAL PROPERTIES**
  - Superior gloss
  - High clarity
  - Unmatched uniformity

- **ENVIRONMENTAL ADVANTAGES**
  - Decreased manufacturing energy consumption
  - Lower carbon footprint

PRODUCT OFFERING

- **SEABULK CONTAINERS**
  - 22-26 tons.
  - 1100 kg bags.

- **PRODUCT RANGE**
  - GP02 – 0.84 I.V.
  - HF01 – 0.80 I.V (Hot Fill Resin)
  - WG02 – 0.76 I.V.
  - GP01 – 0.80 I.V.
  - RH01 – 0.76 I.V. (Fast Reheat Resin)
  - RH02 – 0.80 I.V. (Fast Reheat Resin)
  - RH03 – 0.84 I.V. (Fast Reheat Resin)
  - SG04 – 0.82 I.V.

- **CERTIFICATIONS**
PET RESIN APPLICATIONS

OCTAL offers different PET resin grades suitable for a variety of bottling and packaging applications such as:

- Mineral water
- Carbonated soft drinks
- Hot fill
- Oil containers
- Food
- Pharmaceuticals
PET Sheet - DPET™

OCTAL’s patented technology (trademark DPET™) produces the first and only direct-to-sheet polyester sheet in the world. Developed in-house, OCTAL’s unique DPET™ technology eliminates five stages of the conventional sheet production process (pelletizer, SSP, compactor, dryer and extruder).

DPET™ delivers the finest and most consistent quality PET sheet characterized by enhanced optical and mechanical properties, increased productivity for thermoformers, and environmental advantages which enables brand and retail partners to realize more consistent results pertaining to yield, reliability and an unbeatably clear finish.

OCTAL also offers an array of multi-color PET sheet and can customize color requirements to meet the needs of various applications.

DPET™ FEATURES

- **INCREASED PRODUCTIVITY FOR THERMOFORMERS**
  - Faster startups and increased blade life
  - More precise forming
  - Precise unwinding and web control
  - Lower cycle times in thermoforming
  - Less waste

- **ENVIRONMENTAL ADVANTAGES**
  - Decreased manufacturing energy consumption by 65%
  - Lower carbon footprint than any competing virgin material
  - Palletless shipping

- **ENHANCED MECHANICAL PROPERTIES**
  - Typically observed caliper variation of less than 1% [SPEC. IS 3%]
  - Resistance to cracking
  - High definition even with deep draws
  - Absolute traceability
  - Reliable closure performance
  - More consistently formed multi-pack breakaway features
  - High mechanical rigidity for hang tab applications

- **SUPERIOR OPTICAL PROPERTIES**
  - Enhanced product presentation and shelf impact
  - Superior gloss
  - High clarity
  - Unmatched uniformity

PRODUCT OFFERING

- **GAUGE**
  200 to 1200 microns.

- **COLOR**
  Clear, Black, White, Blue, Tinted Blue, Green, Yellow or as per required Pantone.

- **TYPICAL GAUGE VARIATION**
  +/- 1%.

- **SHEET WIDTH**
  Up to 1650 mm [small size rolls available].

- **STANDARD CORE ID**
  152 mm.

- **ROLL OUTER DIAMETER**
  Up to 1080 mm.

- **DENEST / ANTIBLOCK TREATMENTS**
  Surface Silicon / Internal Masterbatch.

- **CERTIFICATIONS**
SAVINGS PER TRAY WITH DPET™

1. **INCREASED THROUGHPUT**
   DPET™'s consistency allows for up to 8% additional square feet to be processed per hour, meaning lower fixed costs.

2. **FASTER STARTUPS**
   Roll-to-roll consistency means each roll runs like the previous one. Operators do not have to readjust the machine, saving time and material.

3. **GAUGE CONTROL**
   Tight gauge control means maximum downgauging opportunities, which saves on material costs and helps to achieve source reduction objectives.

4. **FLOW CHARACTERISTICS**
   DPET™ sheet is made from resin that has never been crystallized and has a higher I.V. for better distribution into all far-reaching points in the mold.

**17% COST SAVINGS WITH DPET™**

<table>
<thead>
<tr>
<th>Flow</th>
<th>2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge</td>
<td>2%</td>
</tr>
<tr>
<td>Roll Change and Startup</td>
<td>5%</td>
</tr>
<tr>
<td>Throughput</td>
<td>8%</td>
</tr>
<tr>
<td><strong>TOTAL SAVINGS</strong></td>
<td></td>
</tr>
</tbody>
</table>

**KEY POINTS**
- Absolute traceability
- Resistance to cracking
- High definition even with deep draws
- More reliable closure performance
- Enhanced product presentation and shelf impact
- High mechanical rigidity for hang tab applications
- Superior strength
- Smooth and glossy surface that is perfect for detailed printing designs and process printing

**TECHNICAL SPECIFICATIONS**

**EXTRUSION CAPABILITIES**

<table>
<thead>
<tr>
<th>Gauge / Thickness</th>
<th>200 to 1200 microns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Gauge Variation</td>
<td>±1% [Typical observed values]</td>
</tr>
<tr>
<td>Width of Sheet</td>
<td>Up to 1680 mm [Varies with gauge]</td>
</tr>
<tr>
<td>Core ID</td>
<td>152 mm [Standard]</td>
</tr>
<tr>
<td>Roll Outer Diameter</td>
<td>1080 mm [Standard] [Custom ODs available]</td>
</tr>
<tr>
<td>Denest / Anti-block Treatment</td>
<td>Surface Silicone Coating Internal Anti-block Structure [Standard] [Available]</td>
</tr>
</tbody>
</table>

**PROPERTIES**

<table>
<thead>
<tr>
<th>Typical observed values</th>
<th>ASTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Gravity</td>
<td>1.33 g/cm³ D1503</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>564 to 634 kg/cm² D882</td>
</tr>
<tr>
<td>Light Transmission</td>
<td>&gt; 90 % D1003</td>
</tr>
<tr>
<td>Thermoforming Temperatures</td>
<td>121° to 154°C</td>
</tr>
</tbody>
</table>
DPET™ APPLICATIONS

OCTAL's DPET™ is suitable for a variety of packaging applications such as:

- Bakery
- Produce (vegetables and fruit)
- Pre-packaged food
- Yogurt
- Egg trays
- Consumer products
DPET™ for Yogurt

FFS Packaging is one of the fastest growing segments of the food packaging industry. The unique technology behind OCTAL’s DPET™ sheet gives a product capable of enduring the stress and strain of FFS processing.

Consistency is paramount in water cup and yogurt packaging systems. DPET™’s unique resin characteristics allow more material to flow to the corners of the cup resulting in increased strength for more reliable packages that easily endure the stress and strain of FFS processing, distribution and use. It cuts more easily than traditional PET sheet, resulting in more uniform cutting. Multipack breakaway features are more consistently formed so packs stay together until the customer chooses to separate individual units for use.

With a typically observed gauge variation of +/- 2 to 3 microns, DPET™ enables FFS operations to run flat out day after day. DPET™ really shines in applications where new lidding stock technology eliminates the need for a polyethylene layer on the PET sheet. Superior gauge consistency expands the sealing process window, simplifying reliable formation of consistent, robust seals.

Available in white and clear versions, DPET™ is perfect for FFS applications offering a product which not only delivers superior processing and high impact shelf appeal but is also compatible with your objectives for environmental stewardship.

KEY POINTS

- Smooth and glossy surface that is perfect for detailed printing designs and process printing
- Resistance to cracking
- More consistently formed multi-pack breakaway features
- Excellent cutting for form, fill and seal applications
- Absolute traceability
- Enhanced strength
- High definition even with deep draws
DPET™/PE Laminate Sheet

The process of designing an FFS package requires choosing the highest quality material with greatest consistency to meet the needs of the brand owner, food processor and consumer, alike, for high speed machinability.

OCTAL’s proprietary technology produces PET sheet directly from PET melt resin, resulting in a final product with significantly enhanced optical and mechanical properties. With the direct-to-sheet PET product, DPET™, OCTAL delivers the quality required for consistent PET sheet to enable thermoforming, brand and retail partners to realize unsurpassed reliability, higher and more consistent yield, and packaging products with superior gloss and transparency.

Through DPET™’s revolutionary process, enhanced forming properties result from the elimination of several heat-intensive steps during manufacture. This leads to stronger, more reliable packages that easily endure the stress and strain of FFS processing, distribution and use. DPET™’s unique direct-to-sheet manufacturing process eliminates defects from resin contamination and ensures uniformity, meaning that DPET™ packages will consistently protect their contents with reliable shelf life.

DPET™’s optimum gauge control empowers designers with the freedom to push packaging design boundaries with new and exciting shapes and forms, reducing package weight and cost. Its environmental profile stands above the rest, setting new global benchmarks. Combining this with superior, low waste processing capabilities renders DPET™/PE Laminate Sheet the preferred choice for a cost effective, high performing and environmentally conscious FFS package.

KEY POINTS
- Easier cutting with less blade wear
- Unparalleled transparency with minimal haze
- Enhanced strength
- Resistance to cracking
- High definition even with deep draws
- Reel to reel consistency
- Higher yields
- Absolute traceability

TECHNICAL DATA

PRODUCT
Clear Direct-to-sheet Amorphous Polyethylene Terephthalate Sheet (DPET™) with a PE laminate film.

COMPOSITION AND PROCESS
The material is composed of a layer of PE film laminated onto DPET™ sheet.

FOOD CONTACT APPROVAL

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Lock-up or Peelable</th>
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<tbody>
<tr>
<td>Min. Gauge / Thickness</td>
<td>200/40 microns ±3%</td>
</tr>
<tr>
<td>Width of Sheet</td>
<td>150 to 1600 mm -0/+1 mm</td>
</tr>
<tr>
<td>Core ID</td>
<td>152.4 mm [Standard]</td>
</tr>
<tr>
<td>Roll Outer Diameter</td>
<td>Up to 1080 mm ±3%</td>
</tr>
<tr>
<td>Treatment</td>
<td>Silicone or Non-Silicone Coating</td>
</tr>
<tr>
<td>Winding</td>
<td>PE Inside or Outside</td>
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</table>

EXTRUSION CAPABILITIES

<table>
<thead>
<tr>
<th>DPET™/PE with High Barrier Properties</th>
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<tbody>
<tr>
<td>Lock-up or Peelable</td>
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<tr>
<td>Min. Gauge / Thickness</td>
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<tr>
<td>Width of Sheet</td>
</tr>
<tr>
<td>Core ID</td>
</tr>
<tr>
<td>Roll Outer Diameter</td>
</tr>
<tr>
<td>Treatment</td>
</tr>
<tr>
<td>Winding</td>
</tr>
</tbody>
</table>
DPET™/PE LAMINATE SHEET APPLICATIONS

OCTAL’s DPET™/PE Laminate Sheet is suitable for a variety of packaging applications such as:

- Meat
- Cheese
- Poultry
- Dates