**Impact Modification**

**Polypropylene (PP)**

**TYPICAL APPLICATIONS**
- Impact modification of polymers
- Modification of recycled polymer

**Impact Test Results at Room Temperature**

Impact Strength of PP used in tests is 3.40 kJ/m² at room temperature (23°C).

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in PP %</th>
<th>0%</th>
<th>2%</th>
<th>4%</th>
<th>6%</th>
<th>8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>D400.A53.N</td>
<td>3.40</td>
<td>3.80</td>
<td>4.00</td>
<td>4.20</td>
<td>4.55</td>
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<tr>
<td>T400.A70.N</td>
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<td>D100.A40.N</td>
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<td>3.65</td>
<td>3.80</td>
<td>4.15</td>
<td>4.35</td>
</tr>
</tbody>
</table>

Table 1 - Elastron Impact Modifier grades are used in PP as % 2, 4, 6, 8 respectively.

**Impact Test Results at -15°C**

Impact Strength of PP used in tests is 3.00 kJ/m² at -15°C.

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in PP %</th>
<th>0%</th>
<th>2%</th>
<th>4%</th>
<th>6%</th>
<th>8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>D100.A40.N</td>
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<tr>
<td>T400.A70.N</td>
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<td>4.10</td>
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<tr>
<td>D400.A53.N</td>
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<td>3.40</td>
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<td>3.80</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Table 2 - Elastron Impact Modifier grades are used in PP as % 2, 4, 6, 8 respectively.

**Tests were carried out according to ASTM D256.**

Figure 1 - Impact Strength values of PP after addition of Elastron Impact Modifier at 23°C

Figure 2 - Impact Strength values of PP after addition of Elastron Impact Modifier at -15°C
**Impact Modification**

**Elastron TPE**

**Recycled Polypropylene (Recycled PP)**

**TYPICAL APPLICATIONS**
- Impact modification of polymers
- Modification of recycled polymer

**IMPACT TEST RESULTS AT ROOM TEMPERATURE**
Impact Strength of Recycled PP used in tests is 2.80 kJ/m² at room temperature (23°C).

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in Recycled PP %</th>
<th>%0</th>
<th>%2</th>
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<th>%8</th>
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</thead>
<tbody>
<tr>
<td>D400.A53.N</td>
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<tr>
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<tr>
<td>T400.A70.N</td>
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<td>7.90</td>
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</table>

Table 1 - Elastron Impact Modifier grades are used in Recycled PP as % 2, 4, 6, 8 respectively.

**IMPACT TEST RESULTS AT -15°C**
Impact Strength of Recycled PP used in tests is 2.10 kJ/m² at -15°C.

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in Recycled PP %</th>
<th>%0</th>
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<th>%6</th>
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<tr>
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<td>D100.A40.N</td>
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<td>6.15</td>
</tr>
<tr>
<td>T400.A70.N</td>
<td>2.10</td>
<td>5.15</td>
<td>5.40</td>
<td>5.70</td>
<td>6.10</td>
</tr>
</tbody>
</table>

Table 2 - Elastron Impact Modifier grades are used in Recycled PP as % 2, 4, 6, 8 respectively.

**Tests were carried out according to ASTM D256.**

---

**Figure 1** – Impact Strength values of Recycled PP after addition of Elastron Impact Modifier at 23°C

**Figure 2** – Impact Strength values of Recycled PP after addition of Elastron Impact Modifier at -15°C
TYPICAL APPLICATIONS
- Impact modification of polymers
- Modification of recycled polymer

IMPACT TEST RESULTS AT ROOM TEMPERATURE
Impact Strength of HIPS used in tests is 9.60 kJ/m² at room temperature (23°C).
Impact PS used: Edistir 321 P from Enichem.

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in HIPS %</th>
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<th>%4</th>
<th>%6</th>
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</thead>
<tbody>
<tr>
<td>D100.A20.N</td>
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<td>16.00</td>
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</table>

Tests were carried out according to ASTM D256.

Table 1 - Elastron Impact Modifier grades are used in HIPS as % 2, 4, 6, 8 respectively.

IMPACT TEST RESULTS AT -15°C
Impact Strength of HIPS used in tests is 5.60 kJ/m² at -15°C.
Impact PS used: Edistir 321 P from Enichem.

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in HIPS %</th>
<th>%0</th>
<th>%2</th>
<th>%4</th>
<th>%6</th>
<th>%8</th>
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</thead>
</table>

Tests were carried out according to ASTM D256.

Table 2 - Elastron Impact Modifier grades are used in HIPS as % 2, 4, 6, 8 respectively.

Figure 1 - Impact Strength values of HIPS after addition of Elastron Impact Modifier at 23°C.

Figure 2 - Impact Strength values of HIPS after addition of Elastron Impact Modifier at -15°C.
ELASTRON THE TPE SPECIALIST

Elastron TPE

Impact Modification

Recycled High Impact Polystyrene (Recycled HIPS)

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**TYPICAL APPLICATIONS**
- Impact modification of polymers
- Modification of recycled polymer

**Impact Test Results at Room Temperature**
Impact Strength of Recycled HIPS used in tests is 1.89 kJ/m² at room temperature (23°C).
Recycled HIPS: Black Coloured Grade for Hanger Industry

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in Recycled HIPS %</th>
<th>%0</th>
<th>%2</th>
<th>%4</th>
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<th>%8</th>
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<tr>
<td>D100.A20.N</td>
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<td>2.75</td>
<td>3.60</td>
<td>4.20</td>
<td>4.70</td>
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</table>

Table 1 - Elastron Impact Modifier grades are used in Recycled HIPS as % 2, 4, 6, 8 respectively.

**Figure 1** - Impact Strength values of Recycled HIPS after addition of Elastron Impact Modifier at 23°C

**Impact Test Results at -15°C**
Impact Strength of Recycled HIPS used in tests is 1.27 kJ/m² at -15°C.
Recycled HIPS: Black Coloured Grade for Hanger Industry

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in Recycled HIPS %</th>
<th>%0</th>
<th>%2</th>
<th>%4</th>
<th>%6</th>
<th>%8</th>
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<td>2.45</td>
<td>3.30</td>
<td>3.80</td>
<td>4.40</td>
</tr>
</tbody>
</table>

Table 2 - Elastron Impact Modifier grades are used in Recycled HIPS as % 2, 4, 6, 8 respectively.

**Figure 2** - Impact Strength values of Recycled HIPS after addition of Elastron Impact Modifier at -15°C
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Elastron TPE

Impact Modification

High Density Polyethylene (HDPE)

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THERMOPLASTIC ELASTOMERS

elastron.com
TYPICAL APPLICATIONS
- Impact modification of polymers
- Modification of recycled polymer

IMPACT TEST RESULTS AT ROOM TEMPERATURE
Impact Strength of HDPE used in tests is 9.50 kJ/m² at room temperature (23°C).

Impact Strength Value (kJ/m²)

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in HDPE %</th>
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</thead>
<tbody>
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<tr>
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<td>10.00</td>
<td>11.50</td>
<td>13.40</td>
<td>15.20</td>
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</tbody>
</table>

Tests were carried out according to ASTM D256.

Table 1 - Elastron Impact Modifier grades are used in HDPE as % 2, 4, 6, 8 respectively.

Figure 1 – Impact Strength values of HDPE after addition of Elastron Impact Modifier at 23°C

TYPICAL APPLICATIONS
- Impact modification of polymers
- Modification of recycled polymer

IMPACT TEST RESULTS AT -15°C
Impact Strength of HDPE used in tests is 5.90 kJ/m² at -15°C.

Impact Strength Value (kJ/m²)

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in HDPE %</th>
<th>%0</th>
<th>%2</th>
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</thead>
<tbody>
<tr>
<td>D400.A35.N</td>
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<td>7.80</td>
<td>8.60</td>
</tr>
<tr>
<td>D400.A53.N</td>
<td>5.90</td>
<td>6.10</td>
<td>6.90</td>
<td>7.70</td>
<td>8.30</td>
</tr>
</tbody>
</table>

Tests were carried out according to ASTM D256.

Table 2 - Elastron Impact Modifier grades are used in HDPE as % 2, 4, 6, 8 respectively.

Figure 2 – Impact Strength values of HDPE after addition of Elastron Impact Modifier at -15°C
**TYPICAL APPLICATIONS**
- Impact modification of polymers
- Modification of recycled polymer

**IMPACT TEST RESULTS AT ROOM TEMPERATURE**
Impact Strength of ABS used in tests is 16.60 kJ/m² at room temperature (23°C).

<table>
<thead>
<tr>
<th>Impact Strength Value (kJ/m²)</th>
<th>Using percentage of Elastron grades in ABS %</th>
<th>%0</th>
<th>%2</th>
<th>%4</th>
<th>%6</th>
<th>%8</th>
</tr>
</thead>
</table>

Tests were carried out according to ASTM D256.

Table 1 - Elastron Impact Modifier grades are used in ABS as % 2, 4, 6, 8 respectively.

**IMPACT TEST RESULTS AT -15°C**
Impact Strength of ABS used in tests is 12.20 kJ/m² at -15°C.

<table>
<thead>
<tr>
<th>Impact Strength Value (kJ/m²)</th>
<th>Using percentage of Elastron grades in ABS %</th>
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<th>%2</th>
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<td>22.50</td>
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</tr>
</tbody>
</table>

Tests were carried out according to ASTM D256.

Table 2 - Elastron Impact Modifier grades are used in ABS as % 2, 4, 6, 8 respectively.
ELASTRON THE TPE SPECIALIST

Impact Modification

Polycarbonate (PC)

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THERMOPLASTIC ELASTOMERS

elastron.com
TYPICAL APPLICATIONS
- Impact modification of polymers
- Modification of recycled polymer

IMPACT TEST RESULTS AT ROOM TEMPERATURE
Impact Strength of PC used in tests is 11.70 kJ/m² at room temperature (23°C).

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in PC %</th>
<th>%0</th>
<th>%2</th>
<th>%4</th>
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<th>%8</th>
</tr>
</thead>
<tbody>
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<tr>
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<td>13.00</td>
<td>45.50</td>
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</table>

Table 1 - Elastron Impact Modifier grades are used in PC as % 2, 4, 6, 8 respectively.

IMPACT TEST RESULTS AT -15°C
Impact Strength of PC used in tests is 12.70 kJ/m² at -15°C.

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in PC %</th>
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<tr>
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Table 2 - Elastron Impact Modifier grades are used in PC as % 2, 4, 6, 8 respectively.
Elastron THE TPE SPECIALIST

Elastron TPE

Impact Modification

Polyamide (PA)

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elastron@elastron.com
**TYPICAL APPLICATIONS**
- Impact modification of polymers
- Modification of recycled polymer

**IMPACT TEST RESULTS AT ROOM TEMPERATURE**
Impact Strength of PA used in tests is 5.30 kJ/m² at room temperature (23°C).

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in PA %</th>
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</table>

Table 1 - Elastron Impact Modifier grades are used in PA as % 2, 4, 6, 8 respectively.

![Impact Test Results Chart](image)

**IMPACT TEST RESULTS AT -15°C**
Impact Strength of PA used in tests is 4.10 kJ/m² at -15°C.

<table>
<thead>
<tr>
<th>Using percentage of Elastron grades in PA %</th>
<th>%0</th>
<th>%2</th>
<th>%4</th>
<th>%6</th>
<th>%8</th>
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</thead>
</table>

Table 2 - Elastron Impact Modifier grades are used in PA as % 2, 4, 6, 8 respectively.

![Impact Test Results Chart](image)