# Elexar® EL-8421

## Teknor Apex Company - Thermoplastic Elastomer

Friday, June 30, 2017

### General Information

**Product Description**

Elexar EL-8421 is a high performance thermoplastic elastomer designed for electrical applications requiring flexibility over a wide temperature range. Elexar EL-8421 is a high durometer that is RoHS and REACH SVHC compliant. This grade is UL listed and is suitable for both injection molding and extrusion.

| General | | | |
|---|---|---|---|
| Material Status | • Commercial: Active | | |
| Availability | • Africa & Middle East<br>• Asia Pacific | • Europe<br>• Latin America | • North America |
| Features | • Good Colorability<br>• Halogen Free<br>• Heat Aging Resistant | • High Hardness<br>• High Tensile Strength<br>• Medium Density | • Medium Flow |
| Uses | • Appliance Wire Insulation<br>• Appliance Wire Jacketing<br>• Cable Jacketing<br>• Connectors | • Flexible Cord Jacketing<br>• Industrial Cable Insulation<br>• Terminal Cable Jacketing<br>• Underground Power Cable | • Wire & Cable Applications<br>• Wire Jacketing |
| Agency Ratings | • UL 94 | | |
| RoHS Compliance | • RoHS Compliant | | |
| UL File Number | • QMFZ2.E54709 | | |
| Appearance | • Translucent | | |
| Forms | • Pellets | | |
| Processing Method | • Extrusion | • Injection Molding | |

### ASTM & ISO Properties [1]

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Specific Gravity | 0.980 | | ASTM D792 |
| Melt Mass-Flow Rate (MFR) (200°C/5.0 kg) | 16 | g/10 min | ASTM D1238 |
| **Elastomers** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Stress [2, 3] (100% Strain, 0.0200 in) | 955 | psi | ASTM D412 |
| Tensile Stress [2, 3] (300% Strain, 0.0200 in) | 1250 | psi | ASTM D412 |
| Tensile Strength [2, 3] (Yield, 0.0200 in) | 2900 | psi | ASTM D412 |
| Tensile Elongation [2, 3] (Break, 0.0200 in) | 630 | % | ASTM D412 |
| **Hardness** | **Nominal Value** | **Unit** | **Test Method** |
| Durometer Hardness (Shore A) | 91 | | ASTM D2240 |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Continuous Use Temperature | 221 | °F | UL 1581 |
| Brittleness Temperature | -86.0 | °F | ASTM D746 |
| RTI Elec | 194 | °F | UL 746 |
| RTI Str | 194 | °F | UL 746 |
| **Aging** | **Nominal Value** | **Unit** | **Test Method** |
| Change in Tensile Strength in Air (277°F, 168 hr) | 0.0 | % | ASTM D573 |
| Change in Ultimate Elongation in Air (277°F, 168 hr) | 0.0 | % | ASTM D573 |
| Change in Tensile Strength | | | ASTM D471 |
| 140°F, 168 hr, in IRM 902 Oil | -7.0 | % | |
| 250°F, 18 hr, in Animal Fat | -30 | % | |
| 250°F, 18 hr, in Vegetable Oil | -40 | % | |



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| Aging | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Change in Ultimate Elongation | | | ASTM D471 |
| 140°F, 168 hr, in IRM 902 Oil | 4.0 | % | |
| 250°F, 18 hr, in Animal Fat | -25 | % | |
| 250°F, 18 hr, in Vegetable Oil | -30 | % | |
| Change in Volume | | | ASTM D471 |
| 250°F, 18 hr, in Animal Fat | 1.0 | % | |
| 250°F, 18 hr, in Vegetable Oil | 1.0 | % | |

| Electrical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Volume Resistivity (122°F) | 3.5E+16 | ohms·cm | ASTM D257 |
| Dielectric Strength | 970 | V/mil | ASTM D149 |
| Dielectric Constant (1 kHz) | 2.40 | | ASTM D150 |
| Insulation Resistance | 9.0E+10 | ohms | IEC 60167 |

| Flammability | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Flame Rating (0.03 in) | HB | | UL 94 |
| Oxygen Index | 18 | % | ASTM D2863 |

**Additional Information**

This material is formulated to be halogen free

**Legal Statement**



## Processing Information

| Injection | Nominal Value | Unit |
|---|---|---|
| Rear Temperature | 390 to 420 | °F |
| Middle Temperature | 415 to 430 | °F |
| Front Temperature | 430 to 440 | °F |
| Nozzle Temperature | 430 to 445 | °F |
| Processing (Melt) Temp | 430 to 445 | °F |
| Mold Temperature | 77 to 150 | °F |
| Injection Pressure | 200 to 1000 | psi |
| Injection Rate | Moderate-Fast | |
| Back Pressure | 25.0 to 50.0 | psi |
| Screw Speed | 50 to 100 | rpm |
| Cushion | 0.150 to 1.00 | in |

**Injection Notes**

Drying is not necessary. However, if moisture is a problem, dry the pellets for 2 to 4 hours at 150°F (65°C).

| Extrusion | Nominal Value | Unit |
|---|---|---|
| Cylinder Zone 1 Temp. | 380 to 410 | °F |
| Cylinder Zone 2 Temp. | 390 to 420 | °F |
| Cylinder Zone 3 Temp. | 415 to 430 | °F |
| Cylinder Zone 4 Temp. | 430 to 440 | °F |
| Cylinder Zone 5 Temp. | 430 to 440 | °F |
| Die Temperature | 430 to 445 | °F |



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**Extrusion Notes**

Screw Speed: 30 to 100 rpm

### Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Die C, 20 in/min

[3] die cut from extruded tapes


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