



DAI-EL Fluoroelastomers  
Product Portfolio



## Raw Gum Bisphenol COPOLYMERS<sup>a</sup>

| DAI-EL grade | Features & applications   | Compression molding | Transfer molding | Injection molding | Extrusion calendaring | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Specific gravity |
|--------------|---|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------|
| G-7100EBP    | Base polymer for highly filled compounds. Blends with higher polymer Mooney |                     |                  | ■                 |                       | 66                      | 10                         | -18       | 1,81             |
| G-7200BP     | General purpose grade. Best mold flowability                                |                     |                  | ■                 |                       | 66                      | 20                         | -18       | 1,81             |
| G-7210BP     | General purpose grade with easier handling on mill rolls                    |                     |                  | ■                 | ■                     | 66                      | 20                         | -18       | 1,81             |
| G-7320BP     | Best roll handling calendaring and extrusion                                |                     | ■                | ■                 | ■                     | 66                      | 30                         | -18       | 1,81             |
| G-7300EBP    | Base polymer grade complies with FDA 177.2600                               |                     | ■                | ■                 |                       | 66                      | 30                         | -18       | 1,81             |
| G-7400BP     | General purpose grade. Excellent compression set                            | ■                   | ■                | ■                 |                       | 66                      | 40                         | -18       | 1,81             |
| G-7800BP     | Best compression set combined with good mold flowability                    | ■                   |                  |                   |                       | 66                      | 80                         | -18       | 1,81             |

## Raw Gum Bisphenol TERPOLYMERS<sup>a</sup>

| DAI-EL grade | Features & applications                                  | Compression molding | Transfer molding | Injection molding | Extrusion calendaring | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Specific gravity |
|--------------|--|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------|
| G-607BP      | Improved low temperature flexibility                     | ■                   | ■                | ■                 |                       | 67                      | 30                         | -21       | 1,81             |
| G-556BP      | Extrusion grade with good balance of fluid resistance    | ■                   | ■                |                   | ■                     | 69                      | 16                         | -14       | 1,85             |
| G-684BP      | General purpose with good flowability                    | ■                   | ■                | ■                 |                       | 70                      | 40                         | -8        | 1,85             |
| G-621BP      | Compression and Extrusion grade. Highest fuel resistance | ■                   | ■                |                   | ■                     | 71                      | 50                         | -5        | 1,88             |

## Bisphenol Cure Incorporated COPOLYMERS

| DAI-EL grade | Features & applications                                  | Compression molding | Transfer molding | Injection molding | Extrusion calendaring | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Hardness Shore A (after 3 s) | Tensile strength (MPa) | Elongation (%) | 100% Modulus (MPa) | C.set 70 hrs at 200°C (%) |
|--------------|--|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------------------|------------------------|----------------|--------------------|---------------------------|
| G-7251       | General purpose grade. Best mold flowability             |                     |                  | ■                 |                       | 66                      | 22                         | -18       | 70                           | 14                     | 210            | 4,5                | 11                        |
| G-7261       | Same as G-7251 with easier handling on mill rolls        |                     |                  | ■                 | ■                     | 66                      | 22                         | -18       | 70                           | 14                     | 210            | 4,4                | 13                        |
| G-7262       | Lower cure density of G-7261 for complex shapes          |                     |                  | ■                 | ■                     | 66                      | 22                         | -18       | 65                           | 14                     | 270            | 2,7                | 15                        |
| G-704        | General purpose grade                                    |                     | ■                |                   | ■                     | 66                      | 30                         | -18       | 65                           | 16                     | 230            | 3,9                | 22                        |
| G-7371       | Best roll handling calendaring and extrusion             |                     | ■                | ■                 | ■                     | 66                      | 34                         | -18       | 65                           | 15                     | 200            | 4,1                | 11                        |
| G-7373       | Faster version of G-7371                                 |                     | ■                | ■                 | ■                     | 66                      | 34                         | -18       | 65                           | 15                     | 210            | 4,1                | 11                        |
| G-7351 E     | General purpose grade                                    |                     | ■                | ■                 |                       | 66                      | 35                         | -18       | 67                           | 15                     | 210            | 4,6                | 14                        |
| G-7451       | Excellent compression set                                | ■                   | ■                | ■                 |                       | 66                      | 40                         | -18       | 70                           | 15                     | 200            | 4,5                | 10                        |
| G-7452       | Lower cure density of G-7451                             | ■                   | ■                | ■                 |                       | 66                      | 40                         | -18       | 65                           | 15                     | 270            | 2,9                | 12                        |
| G-7851       | Best compression set combined with good mold flowability | ■                   |                  |                   |                       | 66                      | 67                         | -18       | 70                           | 16                     | 200            | 4,5                | 9                         |
| G-7853       | Faster version of G-7851                                 | ■                   |                  |                   |                       | 66                      | 67                         | -18       | 70                           | 16                     | 210            | 4,1                | 9                         |

## Bisphenol Cure Incorporated Terpolymers

| DAI-EL grade       | Features & applications                | Compression molding | Transfer molding | Injection molding | Extrusion calendaring | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Hardness Shore A (after 3 s) | Tensile strength (MPa) | Elongation (%) | 100% Modulus (MPa) | C.set 70 hrs at 200°C (%) |
|--------------------|--|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------------------|------------------------|----------------|--------------------|---------------------------|
| G-671              | Low temperature flexibility            | ■                   | ■                |                   |                       | 66                      | 35                         | -20       | 70                           | 15                     | 200            | 4,4                | 19                        |
| G-558 <sup>b</sup> | Excellent extrusion                    |                     |                  |                   | ■                     | 69                      | 35                         | -14       | 60                           | 12                     | 320            | 2,6                | 28                        |
| G-686              | General purpose with good flowability  | ■                   | ■                | ■                 |                       | 70                      | 34                         | -8        | 70                           | 14                     | 250            | 3,5                | 18                        |
| G-621              | Excellent fuel and chemical resistance | ■                   |                  |                   | ■                     | 71                      | 56                         | -6        | 70                           | 16                     | 300            | 3,8                | 29                        |

<sup>a</sup> Other information for Base Polymer (gum) properties on technical data sheet.

<sup>b</sup> Special Bisphenol compound -see table of recipes

## Test compound recipes

|                                    | Bisphenol cured compounds | <sup>b</sup> Special Bisphenol compounds | Peroxide cured compounds | Low temperature terpolymers |
|------------------------------------|---------------------------|--|--------------------------|-----------------------------|
| Polymer                            | 100                       | 100                                      | 100                      | 100                         |
| Carbon black N990                  | 20                        |  | 20                       | 20                          |
| Carbon black N772                  |                           | 13                                       |                          |                             |
| MgO                                | 3                         | 3  |                          |                             |
| Ca(OH) <sub>2</sub>                | 6                         | 6  |                          |                             |
| Peroxide <sup>1</sup> , 50% Active |                           |  | 3                        | 3                           |
| TAIC <sup>2</sup> , 75% Active     |                           |  | 5,4                      | 4                           |
| Press cure                         | 170°C x 10min             | 160°C x 45min                            | 160°C x 10min            | 160°C x 10min               |
| Oven cure                          | 230°C x 24h               | 230°C x 24h (for c.set)                  | 180°C x 4h               | 180°C x 4h                  |

<sup>1</sup>: 2,5-dimethyl-2,5 di-(t-butylperoxy)hexane

<sup>2</sup>: Triallylisocyanurate

## Peroxide COPOLYMERS

| DAI-EL grade | Features & applications  | Compression molding | Transfer molding | Injection molding | Extrusion calendering | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Hardness Shore A (after 3 s) | Tensile strength (MPa) | Elongation (%) | 100% Modulus (MPa) | C.set 70 hrs at 200°C (%) |
|--------------|--|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------------------|------------------------|----------------|--------------------|---------------------------|
| G-8002 L     | Excellent mold flowability. Blends with other peroxide grades. |                     |                  | ■                 | ■                     | 66                      | 15                         | -20       | 67                           | 22                     | 290            | 3,5                | 25                        |
| G-8002       | Good mold flowability  |                     |                  | ■                 | ■                     | 66                      | 25                         | -20       | 66                           | 21                     | 360            | 2,8                | 32                        |

## Peroxide TERPOLYMERS

| DAI-EL grade | Features & applications  | Compression molding | Transfer molding | Injection molding | Extrusion calendering | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Hardness Shore A (after 3 s) | Tensile strength (MPa) | Elongation (%) | 100% Modulus (MPa) | C.set 70 hrs at 200°C (%) |
|--------------|--|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------------------|------------------------|----------------|--------------------|---------------------------|
| G-962        | Good balance of low temperature properties and chemical resistance |                     | ■                | ■                 |                       | 67                      | 27                         | -19       | 67                           | 22                     | 260            | 4                  | 19                        |
| G-964        | Good balance of low temperature properties and chemical resistance | ■                   | ■                | ■                 |                       | 67                      | 48                         | -19       | 67                           | 25                     | 300            | 3,7                | 23                        |
| G-952        | Improved chemical resistance                                       | ■                   | ■                | ■                 |                       | 69                      | 40                         | -13       | 64                           | 24                     | 330            | 2,4                | 20                        |
| G-902        | Chemical resistance, flex fatigue resistance, low fuel permeation  |                     | ■                |                   | ■                     | 71                      | 19                         | -8        | 70                           | 20                     | 320            | 2,9                | 28                        |
| G-922        | Good mold flowability  |                     |                  | ■                 |                       | 71                      | 25                         | -8        | 69                           | 20                     | 200            | 5,6                | 11                        |
| G-925        | Good mold flowability  |                     |                  | ■                 |                       | 71                      | 43                         | -8        | 69                           | 21                     | 220            | 5,0                | 20                        |
| G-901        | Chemical resistance, flex fatigue resistance, low fuel permeation  |                     |                  |                   | ■                     | 71                      | 48                         | -8        | 70                           | 22                     | 350            | 2,7                | 32                        |
| G-912        | Low compression set with high modulus                              | ■                   | ■                |                   |                       | 71                      | 58                         | -8        | 74                           | 19                     | 170            | 6,5                | 16                        |

## Low Temperature Peroxide TERPOLYMERS

| DAI-EL grade | Features & applications                                    | Compression molding | Transfer molding | Injection molding | Extrusion calendering | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Hardness Shore A (after 3 s) | Tensile strength (MPa) | Elongation (%) | 100% Modulus (MPa) | C.set 70 hrs at 200°C (%) |
|--------------|--|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------------------|------------------------|----------------|--------------------|---------------------------|
| LT-304       | Superior heat and compression set resistance versus LT-302 |                     |                  | ■                 | ■                     | 65                      | 26                         | -30       | 63                           | 14                     | 210            | 3,3                | 16                        |
| LT-302       | Excellent low temperature sealing                          | ■                   | ■                |                   |                       | 65                      | 44                         | -30       | 62                           | 17                     | 270            | 2,8                | 25                        |
| LT-252       | Good balance of low temperature and fluid resistance       | ■                   | ■                |                   |                       | 66                      | 20                         | -25       | 63                           | 16                     | 250            | 2,4                | 30                        |

## BRE Base Resistant Elastomer

| DAI-EL grade | Features & applications   | Compression molding | Transfer molding | Injection molding | Extrusion calendering | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) | Hardness Shore A (after 3 s) | Tensile strength (MPa) | Elongation (%) | 100% Modulus (MPa) | C.set 70 hrs at 200°C (%) |
|--------------|---|---------------------|------------------|-------------------|-----------------------|-------------------------|----------------------------|-----------|------------------------------|------------------------|----------------|--------------------|---------------------------|
| GBR 6002     | Good resistance to amines, bases, hydrocarbons, low temperature |                     |                  | ■                 | ■                     | 62                      | 25                         | -12       | 60                           | 22                     | 500            | 2                  | 24                        |
| GBR 6005     | Suitable for O&G applications                                   | ■                   | ■                |                   |                       | 62                      | 55                         | -12       | 60                           | 21                     | 530            | 2,2                | 29                        |

## Non-Curing liquid COPOLYMER

| DAI-EL grade | Features & applications | Fluorine content (% wt) | ML <sub>1+10</sub> (121°C) | TR10 (°C) |
|--------------|-------------------------|-------------------------|----------------------------|-----------|
| G-101        | Viscosity modifier      | 66                      | 5cp at 60 °C               | -18       |

## Fluorine content & features

| Properties                                    | Fluorine content |        |
|---|------------------|--------|
|   | High             | Low    |
| Curing properties (except peroxide cure type) |                  | Better |
| Compression set (except peroxide cure type)   |                  | Better |
| Low temperature properties                    |                  | Better |
| Oil resistance                                | Better           |        |
| Chemical resistance                           | Better           |        |
| Corrosion resistance                          | Better           |        |

## DAI-EL PERFLUOR

| Raw gum | Features & applications  | ML <sub>1+10</sub><br>(100°C)        | Specific gravity | TR10<br>(°C) | Temp range     | Full-Compound   |
|---------|--|--------------------------------------|------------------|--------------|----------------|---|
| GA-15   | <ul style="list-style-type: none"> <li>POx cure system</li> <li>Low temperature flexibility</li> <li>Cleanness same as FKM</li> </ul>  | 25                                   | 2,0              | -20          | -15°C to 200°C | GA-05<br>• No fillers<br>• Transparent<br>GA-55<br>• MTC filled<br>• Black compound<br>GA-65<br>• BaSO <sub>4</sub> SiO <sub>2</sub> filled<br>• White compound |
| GA-105  | <ul style="list-style-type: none"> <li>POx cure system</li> <li>Good mechanical properties</li> <li>Excellent chemical and solvent resistance</li> <li>High level of cleanness</li> <li>Suitable for semiconductor applications</li> </ul> | 65                                   | 2,0              | -2           | RT to 200°C    | GA-2557501 MTC filled   |
| GA-500  | <ul style="list-style-type: none"> <li>Imidazole cure</li> <li>High level of cleanness</li> <li>Better resistance to steam, amine than triazine cure type</li> <li>Suitable for semiconductor applications</li> </ul>                      | 80<br>(ML <sub>1+20</sub><br>@170°C) | 2                | -3           | RT to 300°C    | GA-5508002 MTC filled<br>Black compound   |

## DAI-EL Fluoroelastomers: Orientation Map

| FKM family               | %F                                  | Bisphenol cure<br>Best heat & comp set resistance                         |  | Peroxide cure<br>Chemical resistance |                         |
|--------------------------|-------------------------------------|---|--|--------------------------------------|-------------------------|
|                          |                                     | Extrusion   | Injection & Compression  | Extrusion                            | Injection & Compression |
| Copolymers               | 66%                                 | G-704<br>G-7261<br>G-7451   | G-7000 series,<br>G-300 series:<br>Low viscosity grades (several precompounds) | G-8002<br>G-8002L                    |                         |
| Terpolymers              | 66% - 67%                           | G-671   |  | G-962                                |                         |
|                          | 68% - 69%                           | G-558<br>G-565  |  |                                      | G-952                   |
|                          | 70% - 71%                           | G-621   | G-686 (G-684BP)  | G-901<br>G-902<br>G-903              | G-922<br>G-925<br>G-912 |
| LT<br>Low Temperature    | 65%<br>(TR10 = -30°C)               |   |  | LT-302                               | LT-304                  |
|                          | 66%<br>(TR10 = -25°C)               |   |  | LT-252                               |                         |
| BRE<br>Base Resistance   | 62%                                 |   |  |                                      | GBR-6002<br>GBR-6005    |
| Special grades           |                                     | Diamin cureable terpolymer: G-501NK<br>Non-curing liquid copolymer: G-101 |  |                                      |                         |
| Thermoplastic elastomers | FTPV<br>Dynamic vulcanisation types | SV-1020<br>SV-1032  |  |                                      |                         |
|                          | TPE                                 | T-530   |  |                                      |                         |

## Fluoroelastomer expertise

Daikin offers the most complete portfolio of Fluoroelastomers products in the world today. From low Mooney materials to high performance peroxide curable products, Daikin FKM technologies are designed to perform in a broad range of demanding service and processing environments.

When you choose DAI-EL, you select the highest quality Fluoroelastomer products. And you join our growing family of satisfied customers who benefit from excellent support of new applications development. Daikin is continuously striving to develop newer and better Fluoroelastomer technologies, and provide outstanding technical support for customers worldwide.

## Technical support

Daikin provides extensive technical support in all major markets: automotive, aerospace, chemical and petrochemical industries.

The Technical Service (TS) for DAI-EL Fluoroelastomers is part of the global TS network of Daikin's Chemical Division. Our TS team in the EU is integrated with the Daikin Chemical Europe Innovation Center in Dortmund, an integration that, among other advantages, provides faster access to analytical measurements.

## Property comparison of Fluoroelastomers with other rubbers

|                            | Fluoro-elastomer<br>FKM | Silicone Rubber<br>MQ, VMQ | Acrylic Rubber<br>ACM | Nitrile Rubber<br>NBR | Ethylene Propylene Rubber<br>EPDM |
|----------------------------|-------------------------|----------------------------|-----------------------|-----------------------|-----------------------------------|
| Specific gravity (raw gum) | 1.8 ~ 2.0               | 1.0                        | 1.0                   | 1.0                   | 0.9                               |
| Heat Resistance            | ★★★<br>★★               | ★★★<br>★★                  | ★★★★                  | ★★★                   | ★★★★                              |
| Low Temperature Resistance | ★★★                     | ★★★<br>★★                  | ★★★★                  | ★★★<br>★★             | ★★★<br>★★                         |
| Electrical Properties      | ★★★★                    | ★★★★                       | ★★★                   | ★★★                   | ★★★<br>★★                         |
| Solvent Resistance         | ★★★<br>★★               | ★★★<br>★★                  | ★★★★                  | ★★★                   | ★★★★                              |
| Flame Resistance           | ★★★<br>★★               | ★★★★                       | ★★                    | ★★                    | ★★                                |
| Ozone Resistance           | ★★★<br>★★               | ★★★<br>★★                  | ★★★<br>★★             | *                     | ★★★<br>★★                         |
| Steam Resistance           | ★★★<br>★★               | ★★★★                       | *                     | ★★★                   | ★★★★                              |
| Acid Resistance            | ★★★<br>★★               | ★★★★                       | ★★★                   | ★★★★                  | ★★★<br>★★                         |
| Oil Resistance             | ★★★<br>★★               | ★★★                        | ★★★★                  | ★★★★                  | *                                 |
| Permeability Resistance    | ★★★<br>★★               | ★★                         | ★★★★                  | ★★★★                  | ★★★                               |

## ISO Certification

Daikin Chemical France, Daikin Chemical Europe, Daikin Industries Ltd and Daikin America Inc have obtained ISO 14001 environmental management system registration and ISO 9001 quality system registration.

ISO 14001: 2004 is a standard established by the International Organization for Standardization which applies to environmental preservation activities. Activities, products and services of our Fluorochemicals plants have been certified as being environmentally sound by an internationally recognized body.

ISO 9001: 2008 is a certification system for quality control established by the International Organization for Standardization which certifies our quality control system, including all activities related to the design, manufacture and delivery of our products.

## Important Notice

The information contained herein is based on technical data and tests we believe to be reliable and is intended for use by persons having technical knowledge and skill, solely at their own discretion and risk. Since conditions of use are outside our control, we assume no responsibility for results obtained or damages incurred through application of the data given; and the publication of the information herein shall not be understood as permission or recommendation for the use of our Fluorocarbon compounds in violation of any patent or otherwise. We only warrant that the product conforms to description and specification, and our only obligation shall be to replace goods shown to be defective or refund the original purchase price thereof.

## Medical Use

This product is not specifically designed or manufactured for use in implantable medical and/ or dental devices. We have not tested it for such application and will only sell it for such use pursuant to contract containing specific terms and conditions required by us.

## Trademarks

DAI-EL is a trademark of Daikin Industries Ltd.

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