KiMFLEX®
Flexible Foam Systems



# SUPERIOR LIVING COMFORT

KiMPUR

HR Foam Systems

## KIMflex® HR FOAM SYSTEMS

People spend most of their time working in their offices or homes, seated in chairs as well as driving in their vehicles due to the increasing commute times and traffic density. Therefore, it is crucial for any office worker and driver to sit in ergonomical seats for a healthy life and high productivity.

To sit ergonomically, a chair perfectly supporting the body, should be chosen. Thanks to the flexibility and resilience of the polyurethane, a chair made of polyurethane foam easily takes the shape of the body to provide support, through an ergonomic seat, backrest and headrest, protecting the spine and increasing comfort. In addition to these benefits, polyurethane's smooth texture provides an aesthetic appearance to the end products. These features make polyurethane commonly used in the furniture and automotive industry. Polyurethane is also used in the production of some medical products as it provides orthopedic properties to them.

High Resilience (HR) polyurethane foam is the most suitable type of foam for the production of ergonomic products, with its versatile and open cell structure. It provides more comfort and durability than other foams, which become more rigid and tend to be compressed over time, unlike polyurethane.

**Kimpur** has developed **KIMflex®** HR Foam Systems to boost human health and increase comfort. Our systems are developed to be used in various applications in furniture, automotive and medical industries.



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# KIMflex® HR Foam Systems for Furniture Industry

## AREAS OF USAGE

- Office chairs
- Café, restaurant and bar seats
- Theater, cinema and amphitheater seats
- Sofas



## ADVANTAGES

- Highly flexibility
- Low free density
- Adjustable hardness range
- Fast curing
- Short demolding time
- Wide operating (rate) range
- Optimum accommodation coefficient (SAG Factor)
- Smooth skin
- Uniform structure
- Resistant to hard process conditions
- Wide (molded) density range
- High flowability and filling

| KIMflex® HR Foam Systems | Description | Recommended Minimum Demolding Time (Min) | Certificate |
|---|---|---|---|
| KIMflex FC 004 - Izokim FC 001 | Used in the production of office furniture. Recommended for aluminum mold applications. More suitable for hard part production. | 5 | ECE R 118.01 Flammability of materials used in the interiors of motor vehicles (Annex 4 , Annex 6) |
| KIMflex FC 016 - Izokim FC 010 | Used in the production of office furniture. Recommended for both aluminum and polyester mold applications. More suitable for low density part production. | 4 | - |
| KIMflex FC 035 - Izokim FC 010 | Recommended for both aluminum and polyester mold applications. It is more suitable for the production of low density hard parts under harsh process conditions. | 4 | ECE R 118.03 Flammability of materials used in the interiors of motor vehicles (Annex 6, Annex 7, Annex 8) |
| KIMflex FC 035-S - Izokim FC 010 | Used in the production of office furniture. Long start-up time (18 sec), more suitable for large part molds. Recommended for both aluminum and polyester mold applications. | 6 | - |
| KIMflex FC 046 - Izokim FC 032 | Used in the production of office furniture. Recommended for both aluminum and polyester mold applications. More suitable for high elasticity, short mold opening time and wide hardness range. | 3 | - |
| KIMflex FC 046 - Izokim FC 033 | Used in the production of conference and cinema seats. It offers a suitable solution for fabric coating. It provides excellent adhesion to the fabric and offers high production efficiency with short mold opening time. | 4 | CAL 117:2013 Upholstered Furniture Flammability |
| KIMflex FC 081 - Izokim FC 034 | Used in the production of office furniture. Suitable for use in models with complex geometries. Ideal for working with a wide range of proportions in large molds. Provides high durability and superior surface quality. Self-crushing feature regulates gas evacuation. | 5 | CAL 117:2013 Upholstered Furniture Flammability |
| KIMflex FC 092 - Izokim FC 010 | Used in the production of office furniture. This product meets European standards. Minimizes the use of harmful chemicals and complies with international health and environmental standards. Long-term durability is ensured for both flexible and molded polyurethane foam material properties of the product. It offers comfort by maintaining its physical and mechanical properties even in repeated use. It has a structure in accordance with environmentally sensitive design and production principles. It provides advantage with its velvet skin structure and high durability. | 4 | - |

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# KIMflex® HR Foam Systems for Automotive Industry



## AREAS OF USAGE

- Motor vehicle seats
- Motor vehicle headrests
- Motorcycle seat pad
- Motor vehicle soundproofing

## ADVANTAGES

- Highly flexibility
- Low permanent deformation
- Adjustable hardness range
- High tear & tensile - rupture resistance
- Optimum compressive strength
- Silky skin
- Uniform structure
- Fast curing
- Short demolding times
- Self-crushing
- Excellent soundproofing
- High flowability and filling

| KIMflex® HR Foam Systems | Description | Recommended Minimum Demolding Time (Min) | Certificate |
|---|---|---|---|
| KIMflex FC 005 - Izokim FC 003 | Recommended for automotive applications using aluminum molds. It is more suitable for the production of low density parts | 5 | - |
| KIMflex FC 005-S - Izokim FC 001 | Recommended for automotive applications using aluminum molds. The reaction profile is slightly slower than KIMflex FC 005 system. It is more suitable for the production of low density parts. | 5 | ECE R 118.02 Flammability of materials used in the interiors of motor vehicles (Annex 6, Annex 7, Annex 8) |
| KIMflex FC 006-S - Izokim FC 003 | Recommended for automotive applications using aluminum molds. It is more suitable for the production of elastic parts with high density. | 5 | - |
| KIMflex FC 008 - Izokim FC 001 | Recommended for automotive applications using aluminum molds. It is more suitable for the production of hard parts with low density. | 3 | - |

| KIMflex® HR Foam Systems | Description | Recommended Minimum Demolding Time (min) | Certificate |
|---|---|---|---|
| KIMflex FC 010 - Izokim FC 003 | Recommended for car soundproofing applications using aluminum molds. | 4 | - |
| KIMflex FC 011-W - Izokim FC 003 | Recommended for automotive applications using aluminum molds. It is more suitable for the production of elastic parts with high density. | 5 | ECE 118.03 & TYPE Approval (Annex 6, Annex 7, Annex 8) *Burning Behavior Tests |
| KIMflex FC 035 - Izokim FC 010 | Recommended for motorcycle pad applications using both aluminum and polyester molds. It is more suitable for the production of low density and harder parts. | 4 | ECE 118.02 (Annex 6, Annex 7, Annex 8) * Burning Behavior Tests |
| KIMflex FC 036 - Izokim FC 010 | Recommended for automotive applications using both aluminum and polyester molds. It is more suitable for the production of parts with high elasticity and lower density. | 4 | ECE R 118.02 Flammability of materials used in the interiors of motor vehicles (Annex 6, Annex 7, Annex 8) |
| KIMflex FC 039 - Izokim FC 010 | Recommended for low VOC automotive applications using both aluminum and polyester molds. It is more suitable for the production of harder parts with low density. | 5 | RENAULT D423109/C Materials for passenger car assessment of VOC amount by thermal / GC / MS (FID) |
| KIMflex FC 049 - Izokim FC 017 | Recommended for high density car soundproofing applications using aluminum molds. | 3 | - |
| KIMflex FC 085 - Izokim FC 040 | It is designed for use in automotive seat headrest production. Its wide working ratio range offers a versatile solution compatible with various molds. The short demolding time ensures high production efficiency. With high durability and a velvet skin texture, it delivers superior performance and an aesthetic appearance. The volatile organic compounds (VOC) content is low, making it environmentally friendly. | 3 | ECE R118 (EK 6,7,8) |

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# KIMflex® HR Foam System Developed for the Bedding Industry

## AREAS OF USAGE

- Mattress Production



## ADVANTAGES

- Ultra-Low Volatile Organic Compound (VOC) Content
- Suitable for Mattress Production with Spray Application
- Anti-Allergic Feature
- Glossy Skin Texture
- High Adhesion Strength

| KIMflex® HR Foam Systems | Description | Curing Time (min) | Certificate |
|---|---|---|---|
| KIMflex FC 090 - İzokim FC 021 | It is designed for mattress production with spray application. Its anti-allergic feature ensures a healthy user experience. The glossy skin texture provides an aesthetic appearance, while the high adhesion strength ensures long-lasting durability. With ultra-low volatile organic compound (VOC) content, it offers an environmentally friendly and human-safe solution. | 13 | - |

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# KIMflex® HR Foam Systems for Medical Industry



## AREAS OF USAGE

Components of medical products

## ADVANTAGES

- High accommodation coefficient (SAG Factor)
- Highly flexibility
- Adjustable hardness range
- High air permeability with a more open cell structure
- Anti-fungal
- Low VOC content
- Long service life

| KIMflex® HR Foam Systems | Description | Recommended Minimum Demolding Time (Min) | Certificate |
|---|---|---|---|
| KIMflex FC 039 - Izokim FC 010 | Recommended for applications using both aluminum and polyester molds, for the components of medical products requiring low VOC content. | 5 | RENAULT D423109/C Materials for passenger car assessment of VOC amount by thermal / GC / MS (FID) |
| KIMflex FC 048 - Izokim FC 015 | Recommended for stress ballproduction applications in processes with conveyor furnaces. | 6 | ECE 118.03 & TYPE Approval (Annex 6, Annex 7, Annex 8) *Burning Behavior Tests |

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# Graphene Based High Performance KIMflex® HR Foam System

By utilizing graphene, a carbon-based recycling material obtained from automotive tires, in the production of HR Foam Systems used in the production of automotive and office seats, Kimpur improves the mechanical properties of its products without requiring the use of extra materials, while both preventing material consumption and reducing carbon dioxide emissions in its production.

Improvements in the mechanical properties of HR foam systems obtained with the use of graphene compared to standard systems were observed, and the test results are given in Table 2.

| Test | Standard HR Foam Systems | Graphene-Based HR Foam Systems | Improvement Rate |
|---|---|---|---|
| Comfort Coefficient (SAG) | 4,36 | 4,62 | %22,47 |
| Tear Resistance ($F_{break}N/cm^2$) | 1,05 | 1,12 | %10 |
| Permanent Deformation (%) | 13,48 | 10,45 | %13,82 |

Table 2: Comparison of Test Results of Graphene-Based HR Foam Systems and Standard HR Foam Systems * Tests were performed at an operating ratio of 100/65 and a molded density of 50 kg/m3

| Graphane Based KIMflex® HR Foam Systems | Description | Recomended Minimum Demolding Time (Min) | Certificate |
|---|---|---|---|
| KIMflex FC 050 - Izokim FC 015 | Graphene Based HR Foam System. It is suitable for production of office chairs and automotive seats. | 4 | 47 |

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# Low Temperature Resistant KIMflex® Prepolymer



## AREAS OF USAGE

- Furniture and office chairs
- Motor vehicle seats
- Motor vehicle headrests

## ADVANTAGES

- Resistant to low temperature
- The same hardness with lower weight
- Thick and smooth skin

| KIMflex® Prepolymer | Description | Density (gr/cm³) | Viscosity (mP a.s) | NCO Content (%) | Appearance |
|---|---|---|---|---|---|
| Izokim FC 012 | It is a pre-polymerized methylene diphenyl diisocyanate (MDI). Recommended for furniture and automotive applications. | 1,2 | 140 | 29,5 | Liquid/Brown |

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# KIMflex® Prepolymer with High Elasticity

## AREAS OF USAGE

- Automotive Seat

## ADVANTAGES

- High Elasticity
- Silky Skin

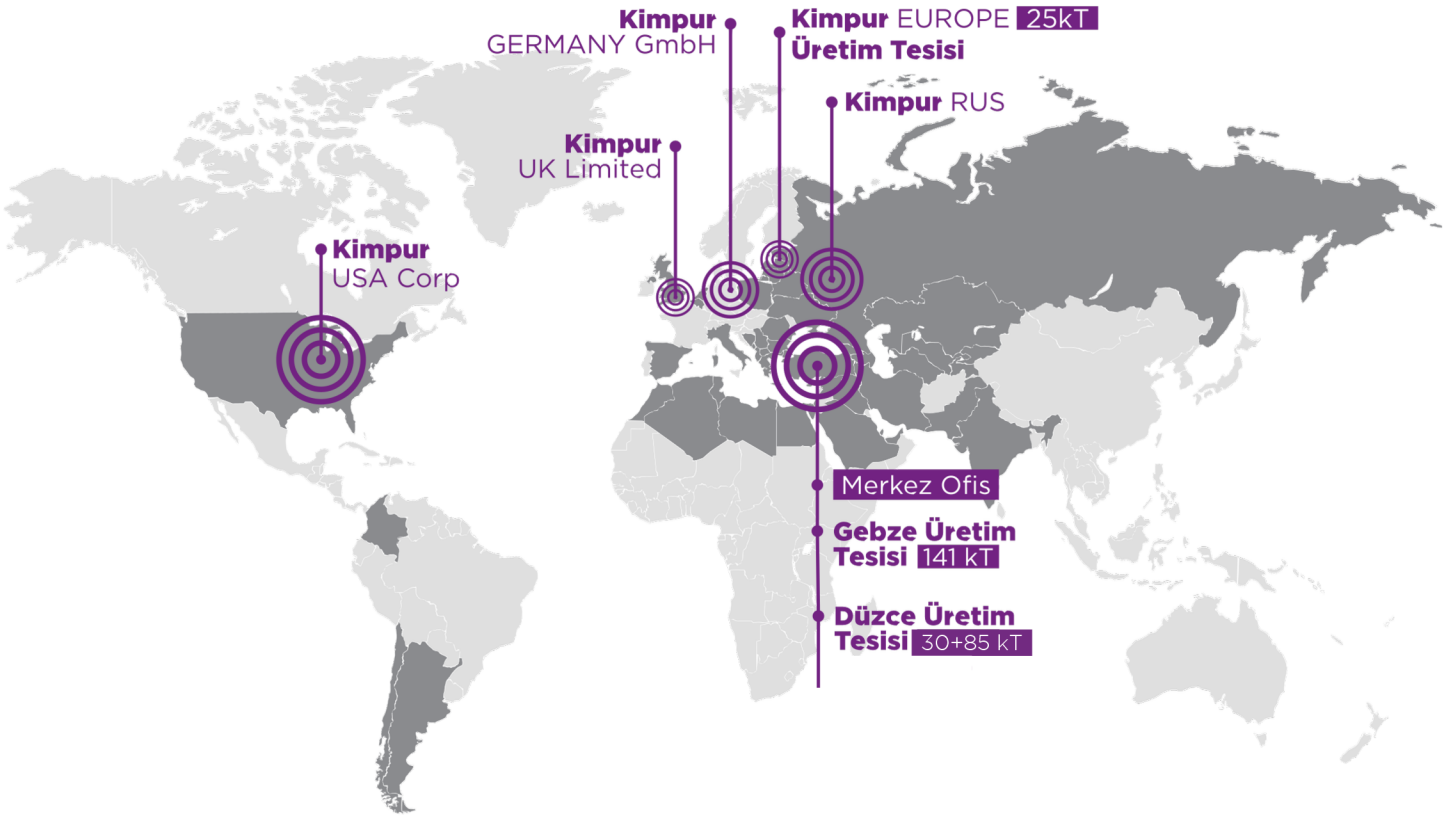
| KIMflex® Prepolymer | Description | Density (gr/cm³ ) | Viscosity (Mp A.s) | NCO Content (%) | Appearance |
|---|---|---|---|---|---|
| Izokim FC 018 | It is a mixture of different aromatic diisocyanates and isomers. It is available to produce highly elastic flexible molded foam for automotive seating. | 1,2 | 60 | 32,3 | Liquid/Brown |

For more information on our products as well as TDS and MSDS documents please contact our Sales Office.

# TÜRKİYE'S LARGEST POLYURETHANE SYSTEM HOUSE

Kimpur is the polyurethane system house with the largest capacity in the region, with a production capacity exceeding 200,000 tons. It leads the sector by exporting to more than 55 countries on 5 continents. Polyurethane systems produced; It is used in different sectors such as shoes, automotive, furniture, heating and cooling, insulation-construction, and defense industry.

## GLOBAL ACTIVITIES




TÜRKİYE'S TOP 500 ISO INDUSTRIAL ENTERPRISES

TOP 1000 EXPORTERS OF TÜRKİYE (TİM: TURKISH EXPORTERS ASSEMBLY)

TÜRKİYE'S LARGEST 500 FORTUNE COMPANIES

İKMİB İstanbul Chemicals And Chemical Products Exporters' Association Stars of Exports

Turkishtime R&D 250 TURKISH COMPANIES WITH THE HIGHEST R&D EXPENSES

REACH COMPLIANCE

United Nations Global Compact

Responsible Care® OUR COMMITMENT TO SUSTAINABILITY

Kimpur Corporate Promotional Film
**Click to watch**




KİMPUR

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**LEGAL INFORMATION**

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