

**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 ergonomic 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.



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	Recommended for aluminum molding applications. It is more suitable for the production of hard parts.	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	Can be used in both aluminum and polyester molding applications. It is more suitable for the production of low density parts.	4	-
KiMflex FC 035 - Izokim FC 010	Can be used in both aluminum and polyester molding applications. It is more suitable for the production of hard parts with low density under hard process conditions.	4	ECE R 118.02 Flammability of materials used in the interiors of motor vehicles (Annex 6, Annex 7, Annex 8)
KiMflex FC 035-S - Izokim FC 010	Suitable for large part molding applications with long start time (18 sec). Can be used in both aluminum and polyester molding applications.	6	-
KiMflex FC 046 - Izokim FC 015	It can be used in both aluminum and polyester molding applications. It is more suitable for the production of high elastic parts. It also provides short demolding time and wide hardness range.	3	CAL 117:2013 Upholstered Furniture Flammability

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® 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 ball production applications in processes with conveyor furnaces.	6	ECE 118.03 & TYPE Approval (Annex 6, Annex 7, Annex 8) *Burning Behavior Tests

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/cm²)	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
IMflex FC 050 - Izokim FC 015	Graphene Based HR Foam System. It is suitable for production of office chairs and automotive seats.	4	47

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/cm ³)	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



KiMflex® Prepolymer with High Elasticity

AREAS OF USAGE

- Automotive Seat

ADVANTAGES

- High Elasticity
- Silky Skin

KiMflex® Prepolymer	Description	Density (Gr/Cm ³)	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

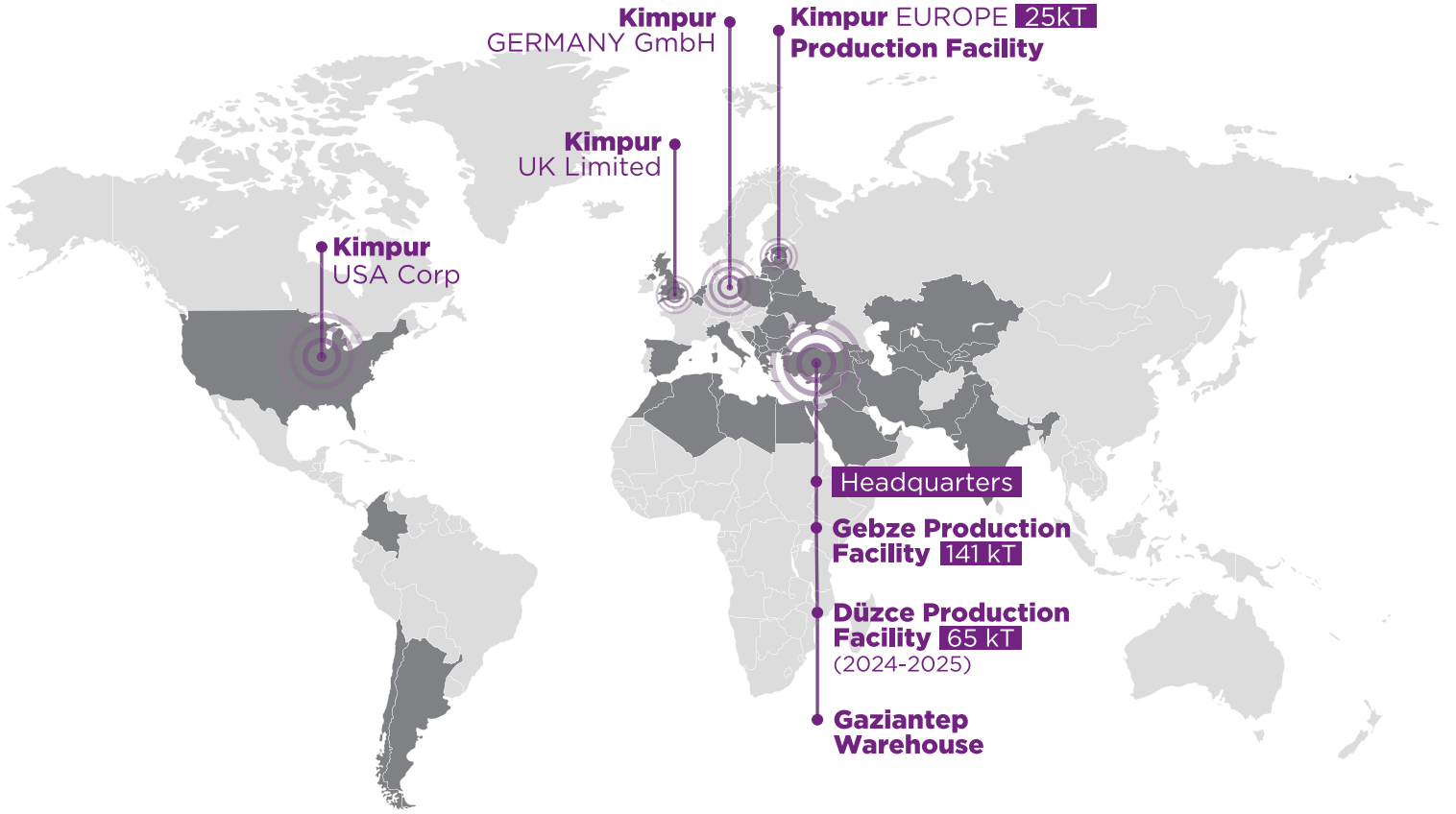
For more information on our products as well as TDS and MSDS documents please contact our Sales Office.



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 50 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



United Nations
Global Compact



Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Kimpur Corporate Promotional Film
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LEGAL INFORMATION

At Kimpur, we strive to provide you with the highest quality polyurethane systems, backed by our expertise and dedication to innovation. The information provided in this brochure is a reflection of our expertise and knowledge. However, we highly recommend for users to conduct their own thorough assessments and tests to ensure the suitability and optimal performance of our products for their intended applications. While we strive to provide accurate and reliable information, Kimpur does not assume any liability or offer any warranty, whether expressed or implied, regarding the properties, performance, or fitness for a particular purpose of our products. Descriptions, specifications, and other details provided herein are subject to change without prior notice and should not be considered as binding contractual guarantees. As the recipient of our products, our customers assume full responsibility for compliance with all applicable laws, regulations, and intellectual property rights. We highly recommend obtaining comprehensive information on product toxicity, adhering to proper handling procedures, and ensuring compliance with safety and environmental standards. At Kimpur, we value our partnership with you and strive to provide exceptional support. However, it is important to emphasize that the application, use, and processing of our products are ultimately the sole responsibility of the user. Please note that the safety data provided in this brochure is for informational purposes only and does not constitute a legally binding Material Safety Data Sheet (MSDS). To obtain the relevant MSDS, kindly request it from your supplier or contact us directly at uncommonsolutions@kimpur.com. Our team is ready to assist you with any inquiries or specific safety information you may need.

Edition: 2024