Superior Living Comfort

kimFLEX®
FLEXIBLE FOAM SYSTEMS

kimpur
KİMTEKS POLYURETHANE

HR Foam Systems

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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.

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

SYSTEM	DESCRIPTION	RECOMMENDED OPERATING RATE RANGE (By Weight)	RECOMMENDED MINIMUM DEMOLDING TIME (Min)	FREE DENSITY (kg/m³)
KIMflex FC 004 - Izokim FC 001	Recommended for aluminum molding applications. It is more suitable for the production of hard parts.	100/60 – 100/70	5	45
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.	100/60 – 100/70	4	43
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.	100/60 – 100/70	4	44
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.	100/60 – 100/70	6	46
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.	100/55 – 100/75	3	47

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

SYSTEM	DESCRIPTION	CERTIFICATION	PERMANENT DEFORMATION (%)	RECOMMENDED OPERATING RATE RANGE (By Weight)	RECOMMENDED MINIMUM DEMOLDING TIME (Min)	FREE DENSITY (kg/m^3)
KIMflex FC 005 - Izokim FC 003	Recommended for automotive applications using aluminum molds. It is more suitable for the production of low density parts	-	7,5	100/55 – 100/65	5	48
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.	ECE 118.02 (Annex 6, Annex 7, Annex 8) *Burning Behavior Tests	7,5	100/55 – 100/65	5	48
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.	-	10	100/55 – 100/65	5	47
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.	-	10	100/60 – 100/70	3	45
KIMflex FC 010 - Izokim FC 003	Recommended for car soundproofing applications using aluminum molds.	-	-	100/55 – 100/65	4	38
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.	ECE 118.03 & TYPE Approval (Annex 6, Annex 7, Annex 8) *Burning Behavior Tests	6,25	100/50 – 100/60	5	49
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.	ECE 118.02 (Annex 6, Annex 7, Annex 8) * Burning Behavior Tests	10	100/60 – 100/70	4	44
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.	ECE 118.02 (Annex 6, Annex 7, Annex 8) * Burning Behavior Tests	5	100/45 – 100/55	4	49
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.	Renault D423109/C	Max. 10	100/60 – 100/70	5	46
KIMflex FC 049 - Izokim FC 017	Recommended for high density car soundproofing applications using aluminum molds.	-	-	100/40	3	52

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/m^3

SYSTEM	DESCRIPTION	PERMANENT DEFORMATION (%)	RECOMMENDED OPERATING RATE RANGE (By Weight)	RECOMMENDED MINIMUM DEMOLDING TIME (Min)	FREE DENSITY (kg/m^3)
KIMflex FC 050 - Izokim FC 015	Graphene Based HR Foam System. It is suitable for production of office chairs and automotive seats.	10,45	100/65	4	47

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

SYSTEM	DESCRIPTION	ACCOMMODATION COEFFICIENT (SAG Factor)	RECOMMENDED OPERATING RATE RANGE (By Weight)	RECOMMENDED MINIMUM DEMOLDING TIME (Min)	FREE DENSITY (kg/m³)
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.	>3	100/60 – 100/70	5	46
KIMflex FC 048 - Izokim FC 015	Recommended for stress ballproduction applications in processes with conveyor furnaces.	>3	100/70	6	48

KIMflex Prepolymers

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

PRODUCT	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

KIMflex Prepolymer with High Elasticity

AREAS OF USAGE

- Automotive Seat

ADVANTAGES

- High Elasticity
- Silky Skin

PRODUCT	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.	1,21	60	32,3	Liquid/Brown

Please contact our sales office for more information about the products, TDSs and MSDSs.

THE POLYURETHANE SYSTEM HOUSE OF TURKEY

Turkey's Top 500 ISO Industrial Enterprises

Turkey's Largest 500 FORTUNE Companies

TOP 1000 EXPORTERS OF TURKEY

PRODUCTION CAPACITY
129.000 TONS
IN TURKEY

PRODUCTION CAPACITY
25.000 TONS
IN EUROPE

- Kimpur Means Mutual Trust and Cooperation
- Kimpur Means Quality
- Kimpur Means Fast Approach to Market Challenges
- Kimpur Means Strong Communication Networks with Its All Stakeholders
- Kimpur is an Innovator and Solution Provider
- Kimpur Means Experience
- Kimpur is Sensible to The Environment
- Kimpur is a Leading and Technology-Oriented Company

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