

گروه صنعتی مکرر

MOKARRAR INDUSTRIAL GROUP



www.mokarrargroup.com

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MOKARRAR INDUSTRIAL GROUP



The Founders of Mokarrar Industrial Group

the founders of Mokarrar Industrial group started its industrial activities in 1994 to innovate in the field of new chemical and polymer products (with the production of epoxy resins and products) and provide different needs of the domestic industry in this field.

The great ideas pursued by the founders plus the demand of the various industrial units have lead Mokarrar to take the valuable path of being the leader in the transfer of new technologies and exploiting new methods to meet the needs of various industries. The founders still wish to take more efficient steps after passing years after the company was founded, with a conscious effort to keep up with the country's industrial and economic prospects, it continues to grow and innovate.

Manufacturing and supplying more than 250 types of products, meeting the needs of more than 1,600 clients in the country, and exporting chemical and polymer products to some other countries, is a testament to the ingenuity, effort, and innovation of executives and the involvement of experts and personnel in this industrial complex, realizing that the implementation of such practices have brought the company a good professional reputation and credibility.

- ✓ Holder of the National Top Entrepreneur Award in 2020 from the Ministry of Cooperatives, Labour, and Social Welfare.
- ✓ Holder of Top Exporter Badge in 2018 and 2019 from the Iranian Ministry of Industry, Mine and Trade.
- ✓ Senior Manager of the Year in 2015 and 2017.
- ✓ Holder of 'Made in Iran' Badge of Excellence from Iranian Chamber of Commerce in 2017.
- ✓ Holder of the Badge of Top 100 Brands of the Year in 2016.
- ✓ Top Exporter of Tehran Province in 2013.
- ✓ Holder of a Gold Badge from Iranian Chamber of Commerce.
- ✓ One of the top ten business elite companies in Iran.
- ✓ The first and only GCL manufacturer in Iran and second GCL manufacturer in the Middle East.
- ✓ Exporter of chemical and polymer products to more than 17 countries.
- ✓ First manufacturer of epoxy products in Iran.
- ✓ One of the most reputable manufacturers of polyurethane products in Iran.
- ✓ The first downstream chemical recycling unit in the petrochemical and refinery industries.
- ✓ The sole executor of specialized projects for measuring machines of Iranian rail industry.
- ✓ Installation, operation and localization of dynamic weighing system in the Iranian Rail Industry.
- ✓ Holder of **ISO 9001**, **ISO 10002**, **ISO 10004** Certificate from SGS Switzerland.
- ✓ Holder of **ISO 10002** Certificate for Customer Satisfaction from TCS Turkey.



Eng. Bahram Movasat
*General Director and
Chairman of the Board*



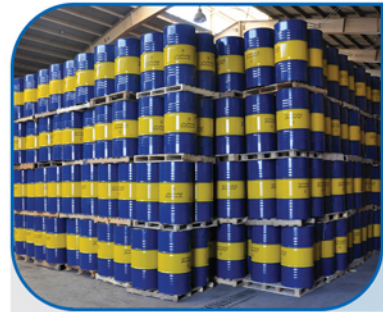
Dr. Mohsen Golpur
*Vice Chairman
of the Board*



Eng. Mohsen Daei
*Member
of the Board*



MOKARRAR Industrial Group Introduction





Areas of activity of the Mokarrar Industrial Group can be introduced in 3 main sections:

Mokarrar has never adopted an approach to repetitive projects and processes that have been repeatedly performed by other industrialists and competitors in the country. The future policy of Mokarrar industrial group is also based upon the same principle. The research and development unit of Mokarrar industrial group is committed to implementing the selection of new designs, innovation, and compliance in the agenda with the fundamental needs of the industry. In other words, identifying the bottlenecks and impediments cropped up in the local industry is one of the special features that have been considered by group technical experts who are carrying out their duties in the research and development department.



Second Part



Production of polymer, chemical and composite products along with the transfer of technical knowledge and taking advantage of the latest global achievements in order to support and meet the needs of the country's industries and also provide more than 250 types of chemical and polymer products in addition to meeting the permanent needs of more than 1,400 industrial units. The country has had a significant and valuable presence in more than 400 national projects in the field of protective coatings.

Mokarrar Industrial Group after a decade of exporting its first products overseas, has gained enough credit to draw special economic incentives for exports. It has also succeeded in exporting a variety of products with global standards at competitive prices to the European, African, Middle Eastern and East Asian countries, and has gained a certain commercial standing and credibility to take an effective step in non-oil exports.

Third Part





Timeline of History

Launching a project management unit with the aim of participating in industrial flooring and protective coatings projects in the form of EPC

Establishment of Mokarrar Engineering Materials Company with the aim of producing resins and epoxy products for use in electrical insulation, industrial adhesives, molding resins, industrial flooring and protective coatings

Establishment of a foreign trade unit in order to transfer technology and technical knowledge and supply goods and equipment for the country's industries

Producing Polyurethane Products with the aim of completing the product supply portfolio and meeting the needs of other sectors of domestic industries and using them in protective coating projects

Establishment of Mokarrar Industrial Group with the aim of investing and launching specialized companies and developing the activities of subsidiaries in line with strategic planning and vision of the organization

Establishment of Acrylic Unit as a New Division at Mokarrar Material Engineering Co. to Produce General Purpose Polymer Products in Construction Industry

Establishment of Mokarrar Trade and Engineering Services Co. with the aim of transferring technical knowledge and supplying goods and equipment of the country's industries and participating in industrial projects as EPC

Establishment of Mokarrar Industrial Flooring Co. with the aim of implementing protective coating projects in various industries in the form of EPC using technology and international standards.

Establishment of Mokarrar Composite Co.(Geosynthetics) with the aim of transferring technical knowledge and participating in the implementation of geosynthetic and geotechnical projects as EPC

1994

1995

1996

1997

1998

1999

2000

2001

2002

2003

2004

2005

2006

Establishment of a general business unit as one of the new divisions of the Mokarrar Engineering Materials Co. with the aim of supplying chemical and polymer products in the field of paint, adhesive and resin industries and other industries.

Establishment of Recycling Unit as a New Division of Mokarrar Material Engineering Co. to Process Low-Grade Products in the Chemical, Oil, Gas and Petrochemical Industries

Launching the First GCL Production Line (ISOBENT) in the IRAN

Launching Polyester Polyols Production Line

Developing Mokarrar Industrial Group Factories and Launching Polyurethane Production Line 2

2019

2017

2018

2015

2016

2013

2014

Establishment of Nano-Based applied research unit in Mokarrar Engineering Materials Company

Establishment of PetroCat Unit to Increase the Efficiency of the Iranian Refineries for Maximum Production of Light Petroleum Products

2009

2010

2011

2012

2007

2008

Launching Epoxy Hardener Production Line

Installing and Launching Dedicated Alkyd Resin Production Line

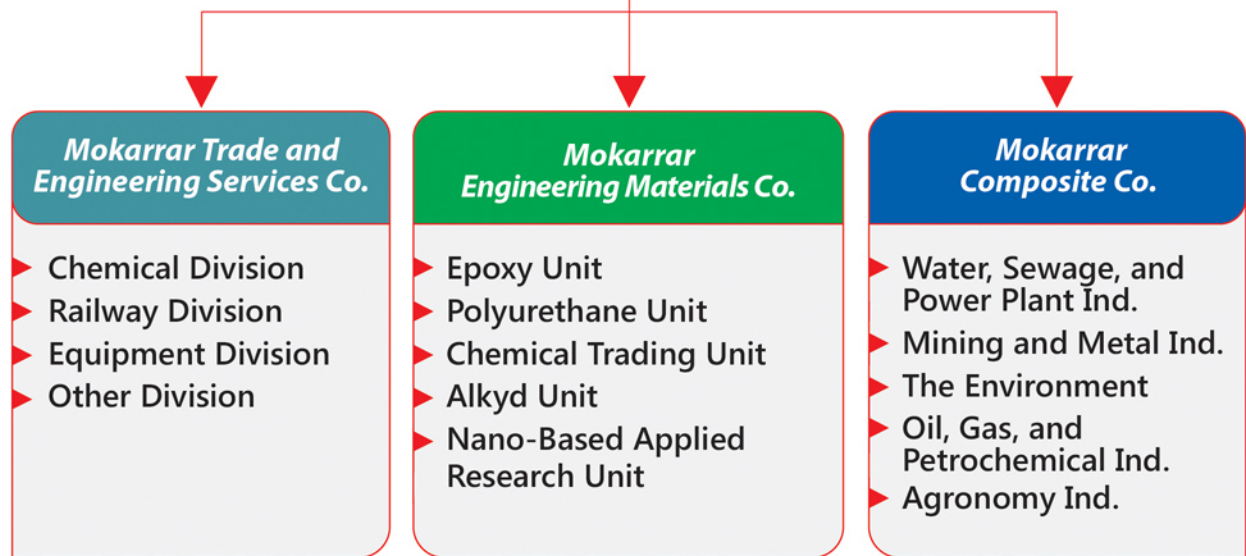
Starting Export Activities of the Group in the field of export of polymer products as well as participation in the implementation of industrial projects in the region and global markets

Establishment of AVAM unit as one of the new divisions of Mokarrar Engineering Materials Co. with the aim of producing new hygienic chemical products with general use in the household consumption basket



Organizational Chart

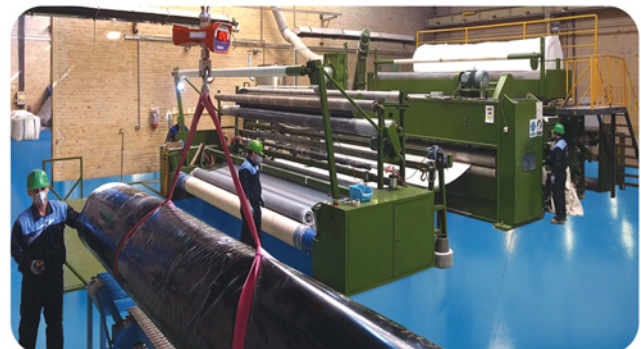
MOKARRAR INDUSTRIAL GROUP





MOKARRAR Industrial Group Factories was built in Lia Industrial City of Qazvin in an area of 45000 m2 which manufactures more than 250 types of products and offers them in various packings by utilizing the most advanced digital machinery as well as the raw material and product quality control laboratories making use of qualified staff, according to international standards.

It is also noted that the products and production line of the factories have been evaluated by experts of the Management and Planning Organization of the country and have been honored with the certification of product identification code from the local authorities.





شرکت مواد مهندسی مکرر
Mokarrar Engineering Materials Co.

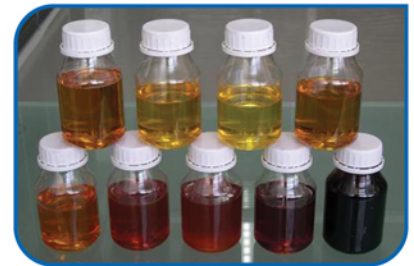
Mokarrar Engineering Materials Co. started its industrial activities in 1994 to innovate in the field of new chemical and polymer products (with the production of epoxy resins and products) and provide different needs of the domestic industry in this field.

The founders still wish to take more efficient steps after the company was founded, with a conscious effort to keep up with the country's industrial and economic prospects, it continues to grow and innovate. Manufacturing and supplying more than 200 types of products, meeting the needs of more than 1000 clients in the country, and exporting chemical and polymer products to some other countries, is a testament to the ingenuity, effort, and innovation of executives.

Specialized and highly efficient units were created to meet customer needs by expanding the activities of Mokarrar Engineering Materials Co and identifying the industry's fundamental requirements and issues by R&D specialists:

Epoxy Unit:

Mokarrar Epoxy Unit as the oldest unit of Mokarrar Engineering Materials Company produced and supplied Epoxy resins for the first time in 1994 through recruiting experienced specialists and up-dated know-how to meet the needs of various industrial sectors in accordance with the international standards in order to compete with the products produced by world leading companies.



Epoxy Hardener:

Mokarrar Engineering Materials Company offers a variety of epoxy hardeners from the families of Polyamine, Polyamide, Anhydride, Cycloaliphatic Amine, Mixed Amine and hardeners required by manufacturers of industrial flooring, paint companies and other industries.

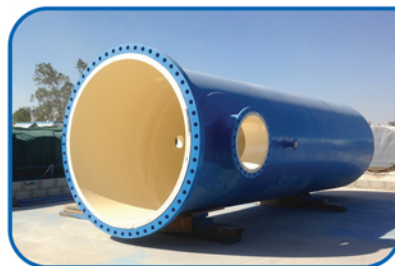


Epoxy Protective Coatings:

Epoxy protective coating with outstanding mechanical, electrical, chemical and thermal properties to protect industrial surfaces such as tanks, ponds, pipes, ducts and all metal and concrete surfaces that are subject to erosion and corrosion due to chemical and environmental interactions.

Highlights of this product include the following:

High adhesion, unlimited thickness, can be used with mineral and organic fibers, integrated and seamless execution, repairable in a very short time, can be used at room temperature or higher, suitable for covering drinking water and food tanks, hygienic and without Microbial complications.



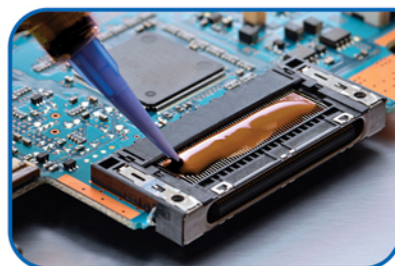
Epoxy Industrial Flooring:

With outstanding mechanical, electrical, chemical and thermal properties for applications in industrial entities, refineries, power plants, petrochemical plants, industrial fridges, hospitals, restaurants, sport complexes, shopping centers etc...



Epoxy Electrical Insulators:

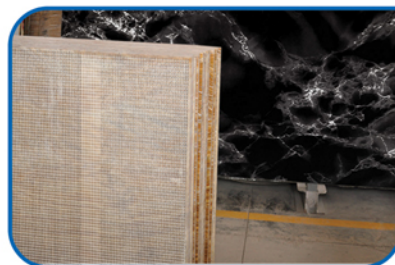
Epoxy electrical insulation with excellent electrical resistance has a special place in the electrical, electronics and telecommunications industries and is suitable for insulating all types of capacitors, resistors and transistors, burying electronic and electrical components, insulating motor and stator windings, transformers, magnets. , Is the production of insulators for the electrical industry, insulation of telecommunication joints, Charlock, electrical coils and production of printed circuit boards (FRP) in various industries.



Stone Protective Coating:

Epoxy resin of building stones is used in strengthening and repairing Marble Stones in stone production and processing factories.

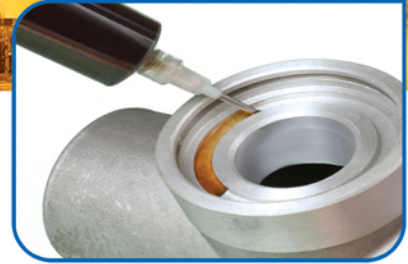
Easy to use, color fastness and various drying times are the advantages of this product.



Industrial Epoxy Adhesives:

Industrial epoxy adhesives with excellent adhesive strength and the ability to connect non-household parts, has a significant place in various industries, the use of epoxy adhesives due to the very good mechanical, chemical and thermal resistance, has become a reliable alternative to methods Conventional joints, such as welding and riveting, are avoided to prevent complications from such methods.

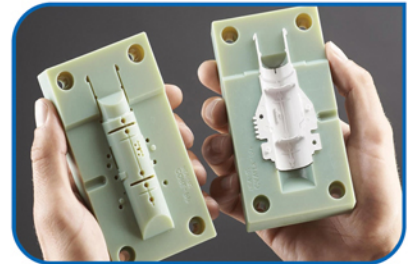
Repairing complex and expensive parts such as engine shells, gearboxes, cylinders, molds is one of its important applications.



Epoxy Molding Resins:

Epoxy molding resins with outstanding mechanical properties and very good chemical resistance, have created a new development in the manufacture of molds and easy and fast copying of complex parts.

Low weight, machining and cutting capability, usability with fillers and mineral and organic fibers and the possibility of complete copying from the most complex parts to the simplest and least expensive method are the unique features of epoxy molding resin.



Epoxy Based Composite Materials:

Today, making light parts with high strength and acceptable is one of the most controversial issues in various industries.

Composite science with different processes and the possibility of manufacturing various parts and equipment with the required strengths, has been highly regarded by various industries including aerospace, military, marine and boat and ship construction, composite panels, wind turbine blades and... Is. Among the materials used in the composite industry are various resins that epoxy resin is one of the most engineered resins available, and has high strength and ease of use.



Epoxy Resin Decorations:

Extensive applications of transparent epoxy resin that have been considered in the manufacture of decorative parts, artistic drawings and three-dimensional flooring.

Applications of this product can be used to make large and bulky parts that have a high thickness.





Polyurethane Unit:

Mokarrar Polyurethane Unit Our highly-experienced professional staff with state-of-the-art scientific knowledge have been producing and supplying various types of **Polyurethane Resins and Hardeners** in different groups.

Rigid Polyurethane Foams:

Rigid polyurethane foam is one of the best insulation materials used in different industries. Due to its low thermal conductivity it is employed in the production of sandwich panels, fridges and freezers, cold storage facilities, Conex Live-In containers, insulation of oil and gas transmission pipelines and spray foams.

This product is supplied in different types such as in spray, injection or casting forms.

This group of products is a formulated system to apply with spray machines.

- The system is suitable for the insulation of roofs, sheds, bays, farms, storage tanks, and pipes through the spraying process.
- It is formulated in different fire resistance classes according to customer requirements
- The range of densities is formulated to cover all customer requirements.



Flexible Polyurethane Foams:

The raw materials of flexible foams (hot or cold) are used to produce different types of sleeping goods, as well as in furniture industry, automotive applications, packaging industry, manufacture of sponges with different densities, panel forms and sponge/foam blocks.

- The polyol blend containing Polyol, Catalyst, Surfactants, and standard additives.
- The range of densities and compression strength is formulated to cover all customer requirements.



Air Filter Foams:

Filter foams are used for various types of air filters in light or heavy vehicles. It has exceptional elasticity, excellent thermal resistance, non-shrinkage properties and has high mechanical resistance, especially the ones used in heavy vehicles.



Filter Adhesives (Filter Sealants):

Filter adhesives are used to stick two ends of a filter together (for automotive or industrial filters). They are chemically resistant to gasoline, diesel and oil and have excellent adhesion to polyamides and metals (even galvanized metals). This product is solvent-free and its physical properties do not change with moisture, extreme temperatures and/or other atmospheric factors.



Shoe Sole Foams:

With unique properties in terms of quality, wear and resistance, it is used to produce different types of soles. This type of foam is used in the production of different types of shoes such as sports shoes, comfortable shoes, work and safety shoes, sandals, slippers, etc...

Another type of polyurethane foam is shoe insole foam (cold shoe foam) which is used to produce various quality insoles inside the shoe.



Wood Imitation Foams:

It is used in the fabrication of various decorative pieces, décor items and in furniture industry.

- The range of densities available is formulated to cover all customer requirements.
- The finished product is waterproof and fire-resistant
- Excellent mechanical strength
- High chemical resistance
- wonderful paintability.



Polyurethane Flooring:

This system is two components floor coating. floors have excellent resistance to chemicals, extreme mechanical and thermal shock, providing long-lasting unchangeable properties. This product provides great floor finishes for applications in the food, beverage, chemical, pharmaceutical industries, parking, warehouse and sports gyms.



Electrical Insulations:

Due to high electrical insulation properties and tensile features of this product, it is used for the insulation of electronic circuit boards and electronic joints.



EPS (Expanded Polystyrene) Adhesive (Panel: EPS – Rockwool):

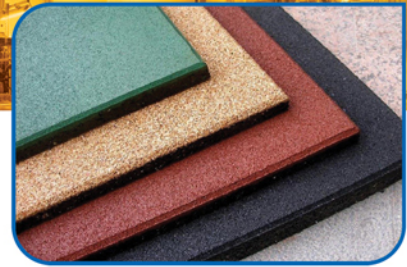
This excellent adhesive product is used to fix different metal, concrete, wooden and plaster surfaces to EPS (Styrofoam) sheets and panels. This product is solvent-free and does not have any harmful effect on the Styrofoam. The outstanding feature of this product is that it dries at ambient temperature and does not need any dryers. Furthermore, this adhesive is used for the production of Rockwool sandwich panels.





Rubber Binder:

One component polyurethane adhesive to bind re-milled rubber crumb for making different types of rubber tile.



Buried Pipeline Coating:

This product complies with international standards for coatings of metal pipes, valves and fittings buried in soil. It is mainly used in oil, gas and petrochemical industry. This coating is chemically resistant and anti-corrosive that prevents corrosion and degradation.



Joint Sealant:

This system is two components polyurethane joint sealant.

- Interior and exterior applications
- Very easy application
- Excellent adhesion
- Excellent chemical resistance
- High elasticity
- Self-leveling due to low viscosity



Laminate Adhesive:

There are two different types of lamination adhesives: solvent-based and solvent-free adhesives. Both of them are of high quality and are produced using **green technology**.



Slabstock Foam (Hot Foam):

It is one of the types of soft polyurethane foams that are produced as Slabstock.

Hot foam (Flexible Foam) is used in the furniture industry, bedding (sleeping mattresses), automobiles, packaging and sponges, washing clouds, coatings, etc. in large volumes.



Polyester Polyol:

The polyester polyol division in MOKARRAR is manufacturing aromatic and aliphatic polyester polyol for the PU industry. The range of polyols with different specifications is producing to cover all of the customer requirements.





Chemical Trading Unit:

Mokarrar Chemical Trading Unit was established in 2008 as one of the new divisions of Mokarrar Engineering Materials Company with the purpose of supplying chemical and polymer products in the field of paint, adhesive, and resin industry.

Mokarrar Trading unit supplies raw materials for paint, resin, adhesive, and other chemical industries through bona fide representatives of producers of raw materials in the world, which in turn becomes a reliable source for supplying raw materials to the country's chemical manufacturing process.



Raw Materials for Paint and Resin Industries (Liquid)

Resins:

- Liquid Paint Epoxy Resins
- Cellulose Acetate Butyrate (CAB) Resins
- Alkyd Resins
- Silicone Resins

Hardeners:

- Polyurethane Hardener 100% and Polyurethane Hardener 75%
- Epoxy Polyamide Hardeners such as 100% H115 and 80% H115, hardener 125

Pigments:

- Organic and Inorganic Pigments
- Shell Pigments
- Aluminum Pastes
- Titanium Dioxide

Additives:

- Anti-Fouling
- Increases Adhesion Surfaces
- Anti-Bubble
- Dispersant
- Leveling
- Accelerator
- Anti-UV





Solvents:

- Isopropyl Alcohol ● Butylene Glycol ● Ethylene Glycol ● Acetone
- Methoxy Propyl Acetate (PMA) ● Phenol



Monomers:

- Butyl Acrylate ● 2-Ethylhexyl Acrylate ● Acrylic Acid ● Methyl Methacrylate ● Methoxy Propyl Acetate (PMA) ● Methacrylic Acid



Raw Materials for Powder Paint Industries

Solid Epoxy Resins:

- Solid Epoxy Resin

Polyester Resins:

- Polyester Resin (TGIC) ● Polyester-Resin (Hybrid) 60/40 and Polyester-Resin (Hybrid) 70/30

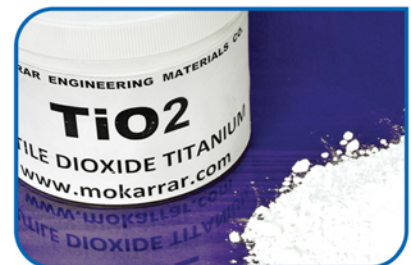


Polyester Resin Hardener:

- Granule (TGIC)

Titanium Dioxide:

- Titanium Dioxide



Powder Additives:

- leveling Agent ● Wrinkle Agent ● Sand Agent ● Degassing Agent
- Charge enhancing agent ● Matte powder paint (polyester hybrid)
- Shining Agent ● Benzoin



Filler:

- Barium Sulfate (Blanc Fixe)

Pigments:

- Organic and Inorganic Pigments ● Shell Pigments





Raw Materials for Adhesive and Ink Industries

Rosins:

- Gum Rosins

Petro Resins:

- Petro Resins C5 & C9

Rosin Esters:

- Panta Rosin Esters ● Glycerol Ester ● Phenol and Maleic
- Solvent adhesives

Solvents:

- Isopropyl Alcohol ● Butylene Glycol ● Ethylene Glycol ● Toluene
- Xylene

Monomers:

- Acrylic and Acrylate Monomers

Pigments for Printing inks:

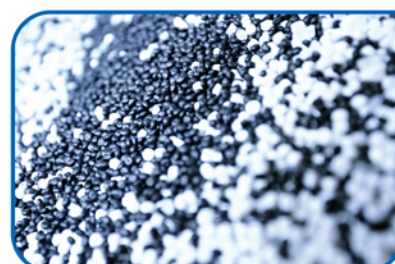
- Titan ● Organic and Inorganic Pigments ● Shell Pigments



Raw Materials for Masterbatch and Compound Industries

Raw Materials and Additives for the Polymer Industry:

- phenolic antioxidants ● phosphite and Teether
- Benzotriazole Anti UV ● Benzophenone
- Clarifier and Toner Additives
- Titanium Dioxide (Anatase and Rutile)
- Flame Retardant (HFFR) Additives
- Slip Agent and Antiblocks





Alkyd Unit:

Alkyd resins, as a raw material for construction and industrial paints, play a vital role in the production and constant price of these products. Due to the high consumption of this material in the paint industry in Iran, using modern knowledge and using innovative methods to reduce the price of this product, Makar began production of these raw materials. High quality and competitive price of the product compared to other domestic manufacturers, in addition to welcoming domestic consumers, has led to the export of the product to other countries.

Types of Alkyd Resins

Long Alkyd Resin:

Long oil alkyd resins are used to produce building paints, air-dry primers, oil polishes, putties, anti-corrosion coatings and coatings on wood and metal.

Medium Alkyd Resin:

Medium oil alkyd resins are used for dry air paints of industrial parts and car paint restoration.

Short Alkyd Resin:

Short oil alkyd resins are used for Nitrocellulose, air-dry, fast-drying and kiln paints.





شرکت مواد مهندسی مکرر
Mokarrar Engineering Materials Co.

Nano-Based Applied Research Unit:

Nano-based applied research unit was launched in 2019 with the collective power of professional and dynamic experts in the fields of chemistry, nanoengineering, materials and energy with the aim of resistance economics. In order to improve the quality of its research projects, this unit has established effective cooperation with domestic and foreign academic and research centers with the approach of "knowledge management and new technologies".

Nano-based applied research unit intends to focus on elitism and use the capabilities of the country's expert youth to establish an effective relationship between two main areas: production of technical knowledge and industrial commercialization with consumer market recognition and in the direction of knowledge-based development of current products And also new unique products take a competitive step. The mission of this unit is to maintain the integrity of research activities to meet the demand of domestic and foreign industries, self-sufficiency in production, currency, business market development, reducing energy consumption, greater welfare, improving the quality and health of society in parallel with wealth creation and employment Take productive steps.





Export Unit:

Considering the relative economic and industrial status of target countries and their pertinent needs and import markets, **Mokarrar Industrial Group** has launched its export activities since 2008 and has since succeeded in developing its export market for a variety of products and technical services.

The group has gained a unique position and business credibility due to its export of various non-oil products with international standards and competitive prices to European and African countries in addition to those in the Middle east and East Asian region.





شرکت خدمات مهندسی و بازرگانی مکرر
Mokarrar Trade & Engineering Services Co.

As one of the 3 subsidiaries of Mokarrar's Industrial Group, **Mokarrar Trade and Engineering Services Company (MTES)** functions to supply equipment, material and services to the Iranian railroad and metro industries as well as the oil, gas and petrochemical industries. MTES Chemical and Railway divisions have been actively serving the country's needs for the past 15 years respectively.

MTES now acts as the representative of more than 30 accredited European and Asian companies offering quality products and services to Iranian industries.



Chemical Division:

This division is in charge of supplying the essential chemicals and specialties for oil, gas and petrochemical industries. Some of the more prominent material that is regularly supplied by **MTES** Chemical Division is as follows:



● Catalysts

- Sulfur Recovery (Claus Catalyst)
- Hydrotreating / Hydrocracking
- Hydrogen Production
- Fluid Cat. Cracking (FCC, RFCC)
- Reforming (CCR, SR)

● Absorbents

- Silica Gel
- Molecular Sieve (3A, 4A, 5A, 13X)
- Active Carbon
- Active Alumina
- Zeolites

● Fuel Additives

- MMT Octane Booster
- Antioxidans
- Fuel Dye
- Anti-Corrosion
- Antifreeze

● Utility Chemicals

- Morpholine
- Ionic Exchange Resins
- Poly Aluminum Chloride (PAC)
- Polyelectrolyte

● Amins

- Diglycolamine (DGA)
- Dimethylamine (DMA)
- Triethylamine (TEA)
- Isopropylamine (IPA)
- Methyldiethanolamine (MDEA)

● Others

- Dimethyl Disulfide (DMDS)
- Formic acid
- Acrylic Acid
- Potash
- Iso-Octane/Octane 80



Railway Division:

MTES is proud to have served the Islamic Republic of Iran's railroad as well as the urban railway industries with the co-operation of its foreign partners. The major fields of our railway division include:

- Signaling and Communication Systems
- Overhead Catenary System (OCS)
- Non Destructive Testing (NDT)
- Measurement equipment
- Depot equipment, Management system and Signaling
- Track superstructure and material supply
- Rolling Stock and Maintenance Vehicles



MTES regularly participates in most all tenders dealing with the supply of equipment listed above for the urban metros as well as the national railway network. MTES has so far been awarded a number of multimillion dollar national railway projects.



شرکت کامپوزیت مکرر



Mokarrar Composite Company is a subdivision of Mokarrar Industrial Group and started its activities in 2000. The company started its activities in the field of designing, offering and projecting geo-synthetic products. The company was able to be an agent of reputable global producers such as Solomax Co. in Canada for different types of membranes, Terram Co. in England for different textiles, Tema Co. in Italy for dimple sheets, Ten Cate Co. of Netherlands for different geo-tubes, CETCO Co. of USA for GCL.

All of these activities have caused our company to become the first EPC Company in the country to stand on a special position. Performing tens of geo-synthetics projects used millions of square meters of product, Mokarrar composite company have started to domesticate the technology of GCL sheets production. This way, Mokarrar Composite company has moved itself from an EPC company to a manufacturer and distributor of GCL with the brand of ISOBENT in the country and in the region.

What is the ISOBENT (GCL)?

This product includes 2 layers of geo-textiles (woven and non-woven) with grained sodium bentonite in between. The nonwoven textile is locked to the woven textile through the sodium bentonite using needling. This way, a composite is formed as a perfect layer to stop transferring fluids. ISOBENT is produced in the form of rolls with different length and width.



Why Using ISOBENT (GCL)?

● Protection of Environment:

In order to avoid from pollution of soil, surface water and underground water, it is essential that polluted materials to be surrounded and conducted by means of protecting layers. It is recommended to use ISOBENT in the following cases:

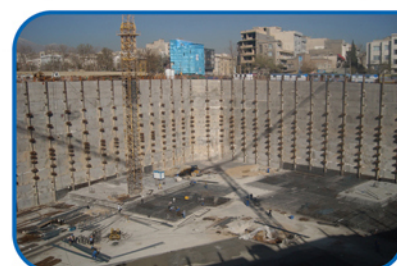
- Mine heaps and tailing dams
- Landfills (sanitary garbage dumping cells)
- Wastewater lagoons
- Tank farms in oil projects
- Waste materials resulted from drilling of oil wells



● Water Sealing:

To avoid water wastage or water infiltration in engineering structures:

- Dams and lake of dams
- Water transferring channels
- Artificial lakes
- Agricultural water storage pools
- Shrimp and fish pools
- Tunnels
- Road making
- Underground structures
- Deep foundation





● Agriculture :

ISOBENT keeps water inside itself and it will stop water from wasting as well. Besides, the possibility of growing roots of plants inside ISOBENT can give a special advantage to this product. In arid and dry areas in which sandy soils and plants need a permanent moisture, the ISOBENT has a high usage .



Quality Control of Product:

The IGS organization (International Geo-Synthetic Society) has defined one of the most important global standards of GCL production and has introduced it as GRI-GCL3.

The Mokarrar Composite's products are produced based on this standard and have been verified by CTT Groupe laboratory in Canada.

Besides, Mokarrar Composite Company has accomplished several research projects with Amir Kabir University for special applications.



Mokarrar Composite Company's Laboratory Equipped with all Testing Equipment





SOLMAX-GSE Membrane:

The **Mokarrar Composite company** is the agent of one of the most famous manufacturers of membrane in the world (**SOLMAX-GSE**).

Solmax company manufactures its membrane sheets based on **GM13** standard which is the highest global standard in this field. These sheets are 8 meters in width and 0.75 to 3 millimeters in thickness in the form of non-smooth and smooth with different colors.

Mokarrar composite company has been successful to perform tens of big projects in industries such as oil, gas, petrochemical, chemical, water supplying, wastewater treatment lagoons, sanitary garbage disposal sites and isolation of underground structures such as metro and underground storages.



Certificates and Representation of International Companies





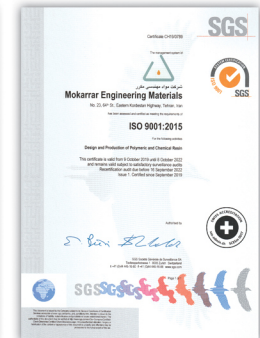
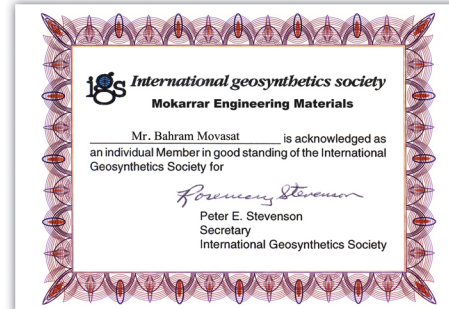
Research and Development Unit (R&D)

The everlasting goal of **Mokarrar Industrial Group** has been and continues to be to help the Iranian industries. Pioneering in setting up and launching new industrial activities requires experienced specialists and advanced equipment to help Mokarrar achieve its goals through research for development. In this regard, Mokarrar Industrial Group is determined to identify the needs of Iranian industries, play a significant role in the self-sufficiency of the Iranian industries in using chemical and polymer products, and provide qualified services to the industry, researchers and experts in the field.

Today the R&D unit is a fundamental and inseparable part of Mokarrar Industrial Group.



Certificates and International Standards





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