ABOUT US

POLIDEC INC,

Is a well known leading company in international market established in 2008, and carrying on a business in 7000 m2 closed area in Antalya free zone, in addition, mass production factory and project office in İstanbul and producing all kinds of precast, covering and decoration materials along with decorative, insulated and exterior and interior facade consisting of polyurathane towards domestic and especially abroad market.

It is the first company to develop polyurethane material in constructions and precast facade systems for the first time in the world and to initiate the formation of a new sector by offering facade solutions with polyurethane material which enables to spread and spread.

With particularly the products of polyurethane spray precast systems and polyurethane balisturad systems and patents on many different products produced with polyurethane besides world patents, Polidec is a researcher and innovative company.

By researching the advantages and disadvantages of materials such as precast concrete, stone, ceramics, metal, wood, polyester etc. used up to today and solving the negative aspects of those materials thanks to polyurethane, Polidec is the first firm to have been gained the building sector a lightweight, innovative material in terms of both decoration and coating by offering heat and sound insulation at the same time.

We perform a service to solve any case of problems that can be experienced in the business district with our expert architects and our field experiments proceeding more than twelve years on a world, Turkey and Antalya scale in the polyurathane application and twenty-five years exceeding in building trade. We carry out your solution partnerships in the project construction process besides giving the finished product to the sector as a world leader in polyurathane industry with our modernist and creative vision and research-development studies, product range, raw material of good quality, technical staff, and experienced engineers.

Polidec working with limited ready-made products and limited producers in the sector and trying to solve the projects in this way until this day is now your partner who has come to a certain point in the sector with its own wide product range and solutions.
In the sector, Polidec is a world leader company which has a machine park solving all kinds of aluminum, steel, polyester, silicone mold manufacturing and production in its own way and designing and producing your project in the quickest way with the experienced technical staff and the capacity of processing 1200 tons of raw material per year.

Polidec is a firm having the power of stock and production that can respond to not only your standard product orders but also standard mass production as soon as possible.
Polidec is a company that has completed its corporate identity, producing in quality standarts of 9001 – 2008, OHSAS 18001 ve ISO 14001.

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WHAT IS POLIURETHANE

WHAT IS POLYURETHANE?

Polyurethane; is a polymer composed of organic unit chains found by Otto Bayer and his colleagues in 1937 in Leverkusen, Germany. The polymer which contains the reaction product (urethane) repeatedly between isocyanate and hydroxyl groups is called "Polyurethane".

First rigid polyurethane foam was produced in 1947 and flexible polyurethane foam was produced in 1954. At the beginning of the 1960's, about eleven thousand derivatives are produced in the automobile industry, they are now widely known and produced from semi-rigid polyurethane foams. Polyurethane which we are not aware of even though it is used frequently as a part of our own daily life is not only a constant part of branches such as automotive, sponge, shoes, transportation, cooling, isolation, furniture, textile, food, electronics, paint, industrial parts production and health sector (biocompatible) and has not yet found its place in the building sector.

WHAT IS THE HARD POLYURETHANE FOAM?

When two components called polyol and MDI (Methyl diisocyanate) come together, the blended material expands and hardens to form rigid polyurethane foam. Polyurethane hard foam is a sinal product and it is a cellular constructed, low density isolation and construction material with closed cells. Due to the low heat permeability of the inflating agent trapped in the cells, it first becomes the most preferred material in the thermal insulation of cold stores and in the bases - walls - terraces - roof isolations of constructions. It is the most efficient heat insulation material at the lowest thickness. Its weight is very light and it is long-lasting itself. Products known as rigid polyurethane foams (rigid PU foam) in more than 11 polyurethane derivatives known in the past have entered our lives as home refrigerators in the early 1970's. Hard polyurethane foams can be produced in a density range of 6-1200 kg / m3 preferred for their intended use. It is applied by casting or spraying method.
Nowadays, as the global warming is a serious threat, the energy policies that are developed suggest the production of materials in the name of "the most rational and most productive use of all kinds of energy and natural resources" polyurethane rigid foams are considered as "the world's best insulation material".
The rigid polyurethane foam, which deserves the title of the best heat insulation material in the world with its closed cell structure and the trapping of environmentally friendly gases forming foam in the cells, is becoming used more and more each day in the construction and building sector, yet it has to reach the places it deserves.

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GENERAL PROPERTIES OF POLIURETHANE

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- Polyurethane has a smooth foam structure; 90-95% of the cells in the structure are closed. This ensures that the heat retention of the polyurethanes is perfect, it is the best insulator known in the world due to this property.
- The foams have the lowest thermal conductivity coefficient. (= 0.0023 Watt / K.h.)
- Usage intensity can be produced between 30-40 kg / m3 and 1200 kg / m3.
- Surface hardness can be produced with surface hardness value of 15-45 ShoreD depending on the density and it produces up to 70-80 shoreD values without depending on the densities with special methods developed by our company due to increase of impact and pressure resistance.
- Polyurethanes provide sound isolation up to 50-55 decibels even though they have closed cellular structure.
- They are good at moisture and water retention.
- Polyurethanes have good adhesion properties. They stick to practically every surface.
- Product alternatives are endless as they can take shape from every mold when you pour the liquid in it.
- Although it is in B3 class of nonflammability it can be attracted to B2 and B1 or even A class with some contributions.
- Polyurethanes have high dimensional stability. They do not show any expansion between -30 and + 80 ° C and do not separate from the glued surface.
- Polyurethanes are long-lasting insulation and decoration materials. 10% in the first 15 years, 15% in 30 years can be seen in the decrease in insulation value. Conductivity values increase to = 0.0025 - 0.0027 Watt / Kh.
- Polyurethanes do not grow bacteria, they do not rot, do not smell, are hygienic and contemporary and technological products. In this manner, these products are environmentally friendly products. Since polyurethane exterior materials do not contain the chemicals that are contained in known plaster types, your exterior paints will last much longer, their colors will stay more vital, and they will be more resistant to external climatic conditions.

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USAGE AND ADVANTAGES

POLYRETHANE CONSTRUCTION USAGE AREAS

- Because it is the best known thermal insulation material, it is primarily used for the external covering of building facades, for floor and roof isolation mostly.
- It ıs a good sound isolation material. It can insulate up to 50-55 decibels. It is also a very suitable material for acoustic arrangements inside. It is a very suitable material to be used instead of many building materials for decoration on façades.
- Interior is a very suitable material to be used in instead of many building materials for decoration purposes. It's material is a material suitable for decorative purposes in water and wet places (baths, spa centers, etc.) because it does not absorbe water and it is antibacterial.
- Our company also increased its strengths by special production methods in shell system solutions and produced shell systems beyond decorative and auxiliary structural elements to carry the polyurethane to the main building element qualities.

ADVANTAGES OF POLYURETHANE

- Polyurethane is the best thermal isolation material among all other known insulating materials. Today, when global warming is a serious threat, energy efficiency, consumption of all kinds of energy and natural resources in the most productive, most economical way, and lowering of energy losses to the lowest levels are the first items of energy policies of the world countries. The best answer to this policy is thermal isolation polyurethane foam.
- Polyurethanes provide sound isolation up to 50-55 decibels even though they have a closed cellular structure.
- Polyurethanes do not absorb water with its water repellency and closed cell structure, so it does not get water in itself and it prevents moisture in buildings.
- Polyurethane facade materials do not grow bacteria due to closed cellular structures, do not rot, do not smell, are hygienic and contemporary and technological products.
- Polyurethanes produce some harmful gases during the production phase but do not represent any risk after the material has been formed. Polyurethane, which will be released from these gases in a short period of time, is a true environmental friend in this sense.
- Polyurethane is a very long-lasting material. Despite the decrease in thermal insulation value in the amount of 10% in the first 15 years and 15% in 30 years, the life of the insulation and the material on the structure is parallel to the life of the building.
- It accepts all kinds of paints on polyurethane elements which are presented to the market with water-based primer paint, and since the cement does not contain lime and similar chemicals, the life and vitality of your exterior paints last longer. Maintains its vitality parallel to the quality of the exterior paint and provides more resistance against outdoor conditions.
- Decorative patterned polyurethanes are finished products presented in different effects and do not require on-site paint. Although we have standard production at surface hardness of 180 kg / m3 density, ShoreD 30 value for decorative products, our insulated facade panels are produced at 160 Kg / m3 density and ShoreD 40 value. In addition, the density of 1200 kg / m3 and ShoreD 80 surface hardness can be reached in special manufacturing. Polyurethanes have high dimensional stability.
- They show no expansion between -30 / + 80 ° C. Outside these boundaries, joint-joint applications are required. Polyurethane is poured as liquid and produced by taking the shape of the mold. Therefore, the model, the pattern alternative is limited to your imagination. Polyurethane facade materials are very easy and fast to apply.
- It is relatively fast compared to other known systems, and does not accept comparison with the production and application speed of conventional façade coating systems. Small scale or low building gluing method is used, while in high buildings mechanic assembly
- It is relatively fast compared to other known systems, and does not accept comparison with the production and application speed of conventional facade covering systems. Small scale or low building gluing method is common, while in high buildings mechanic assembly can be taken into consideration by consideration ghost disturbances. The advantage of the serial application is that it provides you significant cost savings in matters such as labor, insurance, worker accommodation, rents and etc.
- Isolated decorative polyurethane facade elements and coverings allow you to complete the entire facade with a one single product. Since it is a very lightweight system, it will bring very little burden to your construction. You can save a lot of money on your shipping costs. Application process is pretty short. Nowadays, the construction time is very short and it is the most suitable product you can use.
- Although polyurethanes are generally classified as B3 nonflammable, they can be considered as B2 and B1 or even class A with some contributions.
- It's montage is easy, after that the repairment processes also take little time.

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COMPARISON OF POLIURETHANE

COMPARISON OF POLYURETHANE WITH OTHER ALTERNATIVE BUILDING MATERIALS

Firstly; since polyurethane building materials each have a production time of about 10-15 minutes with the mold, it is necessary to mention the shortness of the manufacturing time and the standardization of the products.

Polyurethane building materials can be used instead of many products that can be made from wood. Since it is produced with mold, it is used as a very fast application with very short time and standard production. As it does not get water and humidity in its body, it does not have swelling, working and turning problems, and it is much lighter. Cost is also much lower. It requires much less care; repair and installation are easy.

Interior and exterior decoration elements made of building materials such as natural stone, marble and granite can be made with polyurethane with the same effects. The weight of the stone is about 15 times heavier and does not accept manufacturing and times. When the load on the building is very small, there is no risk of breakage or deterioration. Shipping costs are reduced to a minimum. The living problems arising from natural conditions in natural materials are not experienced with polyurethane. Cost is quite low compared to these materials.

Given the large weights of GRC concrete elements, transportation costs and difficulties as well as the lengthy installation times and the difficulty of their application, the polyurethane construction elements are quite good alternatives with their lightness, compactness, ease of repair, ease of handling and application.

The production and installation times are very long in applications made with gypsum, and plastered fabrics are not preferred because they produce big dirt on the construction site. Also, plaster elements which are very suitable for both heavy and water absorption require considerably longer production and installation times than polyurethane. There is a shipping problem and shame.

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Polyurethane is antibacterial because it does not absorb water in its body, polyurethane is more advantageous than many materials used in wet volumes (baths, saunas, spa centers, etc.).
Besides all these advantages, polyurethane is the best known thermal insulation material.
There is a comparison of different materials with polyurethane in the attached chart.

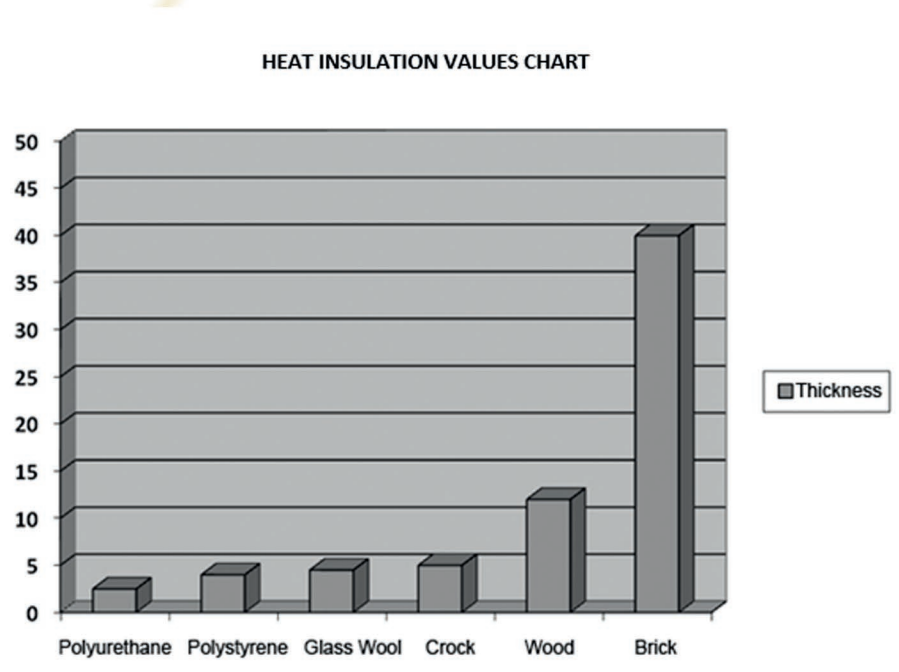

Chart of thicknesses required to achieve the same insulation values with different materials

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TECHNICAL CHARACTERISTICS

TECHNICAL CHARACTERISTICS
Rigid polyurethane comes into existence as a result of a chemical reaction, by mixing the polyols with isocynate and auxiliary chemicals proportionately. Rigid polyurethane is a material which is used more and more in today's building sector because of both its chemical cell structure (closed cell), and its superior physical features which are changing depending on the density. We, as POLIDEC INC, make special production for shell roof systems which have the density of 600-1000 kg/m3 and also strengthened with fiberglass. Our company produces indoor decoration and siding materials as well. We are also providing reports including our research and development studies as well as the test results regarding these products.
Heat conductivity value:
In the tests performed according to the standards of TS 825 thermal insulation regulations, heat conductivity value of polyurethane siding material which has the density of 600-1000 kg/m3 is measured as λ =0.0242 W/mk. This value has the lowest heat conductivity measure when compared to all materials being used for the aim of heating insulation.
Water vapor diffusion resistance (Water Vapor Permeability) :
Water vapor diffusion value means the water vapor amount that is conducted by a material from unit area in unit time under the conditions of specific temperature, humidity and thickness. Condensation/ perspiration, which is emerging on the buildings' walls because of the difference between indoor and outdoor temperatures, is very important in terms of comfort.
Our Polyurethane production, which has the density of 160 kg/m3, have been tested as mü value of 100- 130. This value shows that the material has enough resistance against condensation/ perspiration emerging on walls.
Water absorption with dipping for long-time : According to TS EN 12087 standards with water absorption test; It is certified that as a result of dipping for long- time (leaving the material in a water tank for 28 days), water amount found in mass of polyurethane material which has the density of 160kg/m3, is between 1.10 % and 1.30 %.

Dimensional stability:
Outdoor materials are exposed to significant temperature changes, so dimensional determinations shall be stabile under different atmospheric conditions. Polyurethane is not exposed to any expansion between -30*C +70*C. As from +70*C, coefficient of thermal expansion (1/K) is measured as 147X10-6. The value of this quantity shows that material is exposed to dimensional change of 2 % in with and length after +70*C. In this case, pointing and jointing are applied.
Mechanical features:
Pressing Strength: Polyurethane is one of the materials with the highest pressing strength. Until a deformation emerges in the ratio of 10 % of the material's total thickness, the material resists with the pressing strength of 516 kpa=5160 kg/strength/m2.
Flexibility Module: It is tested that Polyurethane that has the density of 160kg/m3, has the flexibility module of 3000-3500 kpa.
Resistance to fire:
Polyurethane is a material in the fire class of B1- hard to inflame. It continues to be burned with the fire source's contacting continuously. When the fire source is removed, then the burning stops.
Resistance of freezing dissolution: It is observed that the material is not affected in any way because of the sudden and short term temperature changes in freezing dissolution experiments made under the weather conditions between 20*C and -20*C.
Acid fume and resistance to acid:
As the result of experiments made in ITU (Istanbul Technical University), regarding the materials' resistance to acid fume and direct acid solutions; no change in material's color or deterioration is observed when contacted to acid fumes for long term (30 days). It is measured that contacting the acid solution directly caused a 10 % of increase in mass and change in color.
ALL TECHNICAL FEATURES OF MATERIALS PRODUCED BY OUR FIRM ARE TESTED IN LABORATORIES OF THE SCIENTIFIC & TECHNOLOGICAL RESEARCH COUNCIL OF TURKEY (TUBITAK), ITU CONSTRUCTION MATERIALS and WATER SOUND FIRE AND THERMAL INSULATION ASSOCIATION (IZODER) and ACCREDITED REPORTS ARE TAKEN.

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FREQUENTLY ASKED QUESTİONS

• WHY POLYURETHANE?

Polyurethane is the best heat isolation material among commonly known insulating materials. Today, when global warming is a serious threat, energy efficiency, consumption of all kinds of energy and natural resources in the most productive, most economical way, and lowering of energy losses to the lowest levels are the first items of energy policies of the world countries. Polyurethane is the thermal insulation material that will provide the best answer to this policy.

• WHAT IS THE PLACE OF POLYURETHANE IN HEAT ISOLATION?

The coefficient of thermal conductivity between the polyurethane isolation materials is even to the smallest value of the lambda (⌧). This value was determined as ⌧ = 0.0242 W / m.K for isolation decorative facade coatings determined by the accredited institutions, although it did not show slight differences at different densities it is possible to see the position between this value and the other isolation materials of polyurethane in graphic form in the technical information section.
In addition, POLIDEC INC. the patent produces its own decorative exterior facade panes in different thicknesses to provide the required isolation values for different climatic conditions.

• CAN POLYURETHANE PROVIDE THE VOICE ISOLATION?

Yes, although polyurethanes have a closed cellular structure it can still provide the voice isolation up to fifty decibels. Yet, the work in improving this issue is still in progress.

• CAN POLYURETHANE PROVİDE THE WATER ISOLATION?

Thanks to its water repellent and closed cellular structure this material cannot absorbe the water; therefore it cannot cause any moisture inside the buildings.

• CAN POLYURETHANE GROW ANY BACTERIA AS THE OTHER ISOLATION MATERIALS DO?

Polyurethane facade materials do not produce bacteria due to their closed cellular form; they do not rot, do not smell, and are hygienic contemporary and technology products.

• IS THE POLYURETHANE ENVIRONMENTALLY UNFRIENDLY?

Polyurethanes do not contain any risk after the material has been formed, although some harmful gases are produced during the production phase. Polyurethane, which will be released from these gases in a short period of time, is a true environmental friend.

• WHAT IS THE LIFETIME OF POLYURETHANE?

Polyurethane is a very long-lasting material. Insulation value can be seen to decrease by 10% in the first 15 years and by 15% in 30 years. However, the life of the insulation and material on the structure is parallel to the life of the building.

• IS POLYURETHANE DYEABLE?

It accepts all types of paints on polyurethane elements which are presented to the market with water-based primer paint; and since the cement does not contain lime and similar chemicals, the life and vitality of your front facade last longer. Maintains its vitality parallel to the quality of the exterior paint and provides more resistance against external conditions. Decorative patterned polyurethanes are finished products presented in different effects and do not require on-site paint.

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FREQUENTLY ASKED QUESTIONS

• IS POLYURETHANE SURFACE HARDNESS SUFFICIENT?

Although we have standard production at surface hardness of 180 kg / m3 density and Shore D30 value in serial products, our insulated facade panels are produced at 160 Kg / m3 density and Shore D 40 value. In addition, it is possible to reach 1200 kg / m3 density and Shore D 80 surface hardness in a special production.

• AT WHICH RANGE OF HEAT POLYURETHANE MATERIAL CAN BE APPLIED?

Polyurethanes have high dimensional stability. They do not show any expansion between - ∞ / + 80 ° C. Outside these boundaries, joint-joint applications are required.

• IS POSSIBLE TO MANUFACTURE SPECIAL MODELS?

The polyurethane is poured into the liquid as liquid and is produced by taking the shape of the mold. Therefore, the model or the pattern depends on your imagination.

• IS EASY TO APPLY? HOW TO APPLY?

Polyurethane facade materials are very easy and fast to apply. It is relatively fast compared to other known systems, and does not accept comparison with the production and application speed of conventional facade cover systems. Small scale or low building gluing method is used, while in high buildings mechanic assembly can be taken into consideration by taking into consideration ghost disturbances. The advantage of the serial application is that it provides significant cost savings in matters such as labor, insurance, worker accommodation, rental of scaffolding, etc.

• WHAT ARE THE APPLICATION ADVANTAGES COMPARING TO THE OTHER SYSTEMS?

Isolated decorative polyurethane facade covers allow you to finish the entire facade with a single product. Since it is a very lightweight system, it will additionally bring very little burden. You save a lot of money on your shipping costs. The application time is pretty short. Nowadays, the construction time is very short and it is the most suitable product you can use.

• IS POLYURETHANE FLAMMABLE MATERIAL?

Although polyurethanes are generally classified as B3 nonflammable, they may be attracted to B2 and B1 or even to A class of nonflammability.

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