

2019

Cluster Profile Electrical Fittings, Sargodha



Turn Potential Into Profit

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1 Description of Cluster

1.1 History and Background of Cluster

Electrical fittings and accessories are the necessary component of every household, office and other commercial buildings. A plastic material called Bakelite is normally used to prepare the electrical fittings and accessories. The major portion of electrical fittings industry is concentrated in unorganized sector, with large presence of small and medium enterprises. Sargodha, Karachi and Lahore are major clusters of electrical fittings production in the country.

Sargodha is well known for the production of quality electrical fittings in Pakistan. The manufacturing of electrical fittings in Sargodha can be traced back to 1960 with the opening of RCI factory. The factory produced the goods for 10 years before it was closed down in the year 1970 due to unforeseen circumstances. The workers who had developed an awareness and skills for production processes started to produce electrical fittings at small scale. With the passage of time, more units were formed and now around 70%¹ of Pakistan's Bakelite products, especially electrical fittings, are being produced in Sargodha. The major supply of electrical accessories to units of other cities like Karachi and Lahore is also from Sargodha.

Presently, Sargodha electrical fittings cluster is comprising of around 360² manufacturing units. Majority of the units are operating as a cottage of small scale levels in unorganized sector. However, organized sector comprises of a few large and medium size units as well. Bush Pakistan (Pvt.) Ltd. Brothers and Hero Industries dominate the organized market in this industry. The cluster is providing direct employment opportunities to around 10,000 people.

1.2 Defining the Products

There are a variety of products, which can be included in the product range of electrical fitting products. The main products manufactured in Sargodha are as follows.

- Switches
- Sockets
- Holders
- Bell Push
- Ceiling Rose

These above products are relatively produced on mass level and comprise of 70% of the total electrical fittings production.

¹ Source: Sargodha Chamber of Commerce & Industry (SgCCI) and Electrical Concerns Manufacturers Association (ECMA), Sargodha

² Source: Sargodha Chamber of Commerce & Industry (SgCCI) and Electrical Concerns Manufacturers Association (ECMA), Sargodha



While the other product range may include:

- Power Plugs
- Indicators
- Fuse
- Buzzer
- Fan Dimmer
- Tube Choke & Patti
- Street Lights
- Main Switch
- Wire Extension

These items comprise almost 30% of total production.

1.3 Core Cluster Actors

According to industry sources, Sargodha electrical fittings cluster is comprised of more than 360 manufacturing units, with majority of the units are of small and cottage size. The key industry statistics are as follows:

Table 1: Electrical Fittings Cluster, Sargodha

Number of Units	<p>Approximately 360 units</p> <ul style="list-style-type: none"> • 10 Units Large and Organized • 150 Medium and Small Mix of Organized and Unorganized • Moreover, around 200 Cottage level units are also operating as Vendors
Employment Generated	<p>About 10,000 people are directly employed by the manufacturing units.</p> <p>In addition to that a lot of labor is also engaged on daily wages or contractual employment on demand basis.</p>
Capacity Utilization	70% to 80%

Source: Sargodha Chamber of Commerce & Industry (SgCCI) and Electrical Concerns Manufacturers Association (ECMA), Sargodha

At present, installed capacity and production of these fittings can be assumed sufficient to fulfil the demand. However, a sufficient gap is still expected to exist due to increasing number of housing units in Pakistan.



1.4 Other Cluster Actors

The key cluster support actors who provide support services to core cluster in the area are including but not limited to raw material suppliers, machinery suppliers, finishing and packaging service providers etc.

Table 2: Suppliers / Support Actors, Electrical Fittings Cluster, Sargodha

Description	Details
Bakelite Powder, Resin and Urea Compound Suppliers	The Bakelite Powder, Resin and Urea Compound are the basic raw material used in manufacturing of electrical fittings, which are largely being imported from China and Italy. However, manufacturing of these materials also started in recent years in Pakistan. The suppliers of both local and imported materials are operating in the cluster. However, large units are directly sourcing or importing the materials as per their manufacturing requirements. Moreover, around 50 units are operating in the Gujranwala region, which provide Bakelite Resin / Powder to local manufacturers of Sargodha cluster.
Small Metal Parts	The small metal parts of 'Brass' and 'Brass Sheet' are used as assembling components of different electric fittings items. Around, 100 cottage size units for making 'Brass Components' are currently operating in cluster. The 'Brass Sheets' are sourced from Gujranwala.
Porcelain	Used in certain components of different items, primarily sourced from Gujranwala and Gujrat
Other Assembling Parts	Both suppliers and manufacturers (around 5 units) of assembling parts (i.e. screws, nut & bolts, springs, etc.) are operative in the cluster. Major raw material of assembling parts is being sourced from Daska.
Mold Making	Molds and Dies are extensively used for manufacturing of electrical fittings, around 70 units are providing mold making services to the manufacturers of electrical fittings.

1.5 Geographical Location

The cluster is scattered around the city of Sargodha; however main concentrations are on:

- Kot Farid Road
- Rehman Pura
- Muhammadia Colony
- Iqbal Colony
- Block No. 5, 25 and 29

Apart from these areas, numerous cottage size units are also established in the nearby villages.

1.6 Current Cluster Scenario

Electrical Fittings Industry of Sargodha has a huge potential and is critical to SME growth. Despite its economic importance, the Electrical Fittings Manufacturing SMEs in Sargodha currently suffer from a variety of technological obsolescence issues and structural & institutional weakness, which has constrained their ability to take full advantage of the rapidly advancing process of globalization.

The industry is still working on conventional lines and they do not use basic CNC machines (wire cut, milling etc.) for die / mold making. There is an urgent need to move the industry towards step by step automation to compete with rapidly changing environment of world in technology and regulatory framework. Simultaneously, there is also need of the time to comply with the international environmental, management, safety and sanitary standards.

At present installed capacity and production of electrical fittings can be assumed sufficient to fulfil the demand. However, a sufficient gap is still expected to exist due to increasing number of housing units in Pakistan. According to industry estimates around 30% of the electrical fittings, particularly Energy Savers, are currently imported from China. The manufacture of switches, plugs, sockets and other accessories like Ceiling Rose etc. are very simple and have a bright future in Pakistan.

2 Analysis of Business Operation

2.1 Production Operations

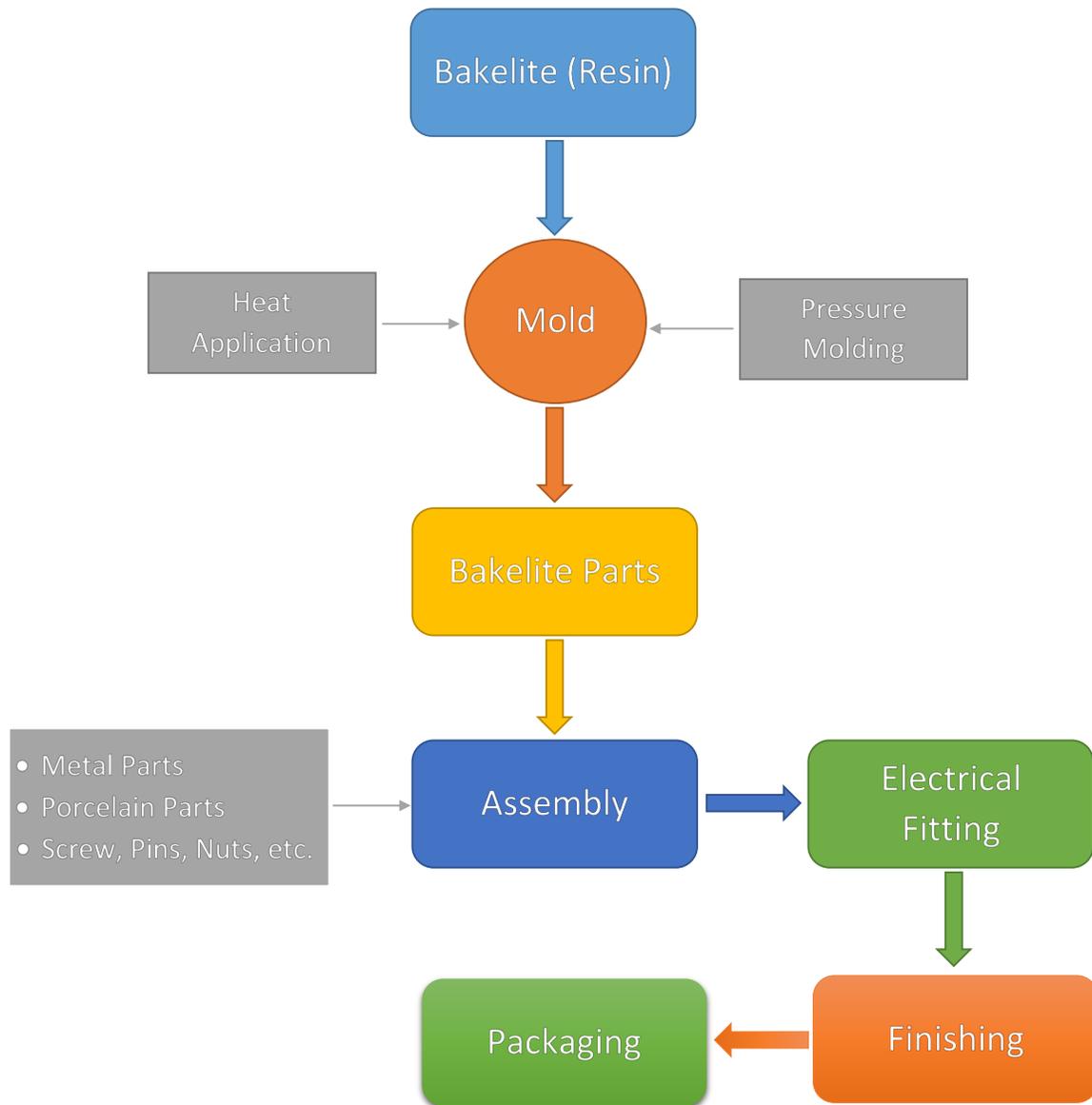
A measured quantity of bakelite resin is poured into the mold / die fixed on a hydraulic press. The press has arrangements of two gas burners, one placed below the mold and other on top. Once the bakelite powder is poured into the mold, burners are switched on and the press is locked manually. Each product takes specific amount of time to take the desired shape and strength. A small miscalculation on this stage can lead to disfigure or products with less than desired strength. Once the products take its final shape, the press is lifted and the finished product is taken out, either manually or through an inbuilt mechanism in the mold.

At this stage, different metal parts including pipes and pins are attached to the main body of the products.

Moreover, most electrical fitting products are composed of more than two components. Therefore, different parts are also attached at this stage with the help of screws and nuts. Now the product is ready for final finishing to chop off any loose raw material and packaging.



Figure 1: Production Process Flow



2.2 Raw Materials

There are different basic raw materials used for manufacturing of electrical fittings. A typical bakelite based electric product requires the following raw materials:

Table 3: Major Raw Materials

Description	Details
Bakelite Powder and Urea Compound	This is the major component of any electrical fitting manufactured by the industry. The importance of this raw material can be gauged from the fact that this industry is also widely known as Bakelite Industry. Bakelite is a type of plastic that can easily be heated and molded into different products and offers wide range of color options. Both imported and locally processed Bakelite powder is easily available in the local market.
Porcelain	Porcelain is used as an insulator in the electric fittings. Not all electric fittings need porcelain. It is used mainly in products that are to be used for heavy loads or continuous usage. Porcelain is mainly locally processed and is easily available.
Brass / Metal Parts	All electric goods use metal parts. Metal parts are normally made of brass because of its elasticity and electric conductivity. Brass sheets are purchased from the market and parts of required size and type are prepared on cutting and bending dyes. Ready-made brass parts are also available in the local market but are usually not cost effective and do not guarantee quality.
Screws and Nuts	Majority of the electric fittings are composed of more than one individual part. Screws and nuts are used for assembling and joining different parts of a product.
Pins and Pipes	Metallic pins and pipes are also used for external electricity connection. These are normally ready-made and are easily available in the local market.
Springs	Springs are other important components used in the assembly of electric switches. According to the products, different sizes of iron springs are used.

The bakelite resin / powder, which is the basic raw material is largely imported from China and Italy. Some of the manufacturers are using the local made resins from Gujranwala, Sheikhpura and Gadoon. But the cluster is still relying on imported Chinese resin due to good quality and producing good finish of the parts. However, the use of local manufactured powder is increasing to reduce the production costs.



The availability of imported bakelite resin / powder is often scarce and the manufacturers have to face numerous difficulties to maintain the demand. Currently 4-5 containers of worth US\$ 0.149 million were being imported from China & Italy and consumed³.

Other raw materials are quite easily available in the local market in Pakistan. Traders and raw material suppliers source these items from different parts of the country, especially from Lahore, Karachi and Gujranwala.

2.3 Technology Status

There is lack of use of modern manufacturing machines and techniques. Currently, semi-automatic machinery is being used by the industry. The machines are locally made, labor oriented and inexpensive as compared to modern machinery. Because of conventional machine tools, manufacturers cannot design sophisticated dies, which is the requirement of special designs. Conventional die making method also increases the duration of die making and sometimes it takes more than one year. And even after this time, sometimes die fails in process of producing proper design products.

Moreover, quality of local made die / mold is not good that results in low quality products and causes to face the problems in product standardization. Large size units are outsourcing their die / mold requirement from China but small size and cottage level units cannot afford the outsourcing and dependent on conventional die making. Small units even using manual presses instead of automatic hydraulic presses.

Similarly, there is lack of testing facility for checking mold hardness, metallographic and material testing of molds etc. Electric testing facilities (e.g. Voltage/Ampere Testing) are also generally not available.

2.4 Marketing & Sales

Sargodha Electrical Fittings Cluster is primarily targeting the local market; around 70% of the electrical parts in Pakistan are being manufactured and supplied from the cluster. In order to target and cater for the market, manufacturers have developed a network of distributors across the country. Usually, 30 days' credit cycle is maintained in context of local trades.

The sales and distribution network flow in local market trade is as follows;



Some of the manufacturers also have their own retail and distribution arrangements for distribution of products. Additionally, export agents and local sales agents are also working to facilitate sales of electrical fittings.

³ Electrical Fittings Manufacturing Association

2.5 Financing

The funding from financial institutions is not popular among the industry stakeholders due to high interest rates. Generally, investors rely either on their personal investment or friends and family sources of financing. However, almost all the registered financial institutions of Pakistan have their branches within the geographical area of the cluster and are providing the financing.

At present, no financial institution has developed / offered any customized lending scheme for the requirement of electrical fittings manufacturers. The available financial products are not appropriate to cater the requirements of the cluster.

2.6 Human Resource Management

The education level of workers / labor working in this cluster is very low, which is a major hindrance in learning and accepting new tools and techniques. The industry is forced to work on conventional lines. There are no specific vocational training facilities for the training of workers of this cluster. Most of the labor is semi-skilled and is trained on job.

2.7 SWOT Analysis

Strengths

- Diversified range of product mix and competitive pricing
- Low cost unit so therefore contains ample opportunity to grow
- Flexibility in production runs with short lead times
- Strong vendor network
- Good entrepreneurial skills

Weaknesses

- Technological obsolescence and lack of availability of modern technology
- Small and cottage size units with weak management skills and structures
- Intra-market price competition
- No internationally accredited testing laboratory
- Limited product innovation
- Lack of branding
- High power prices

Opportunities

- Potential global market for export e.g. Sri Lanka, Afghanistan, Bangladesh etc.
- High growth potential due to expected growth in housing and construction sector



Threats

- Domestic / international political situation
- Critical labor shortage of skilled workers specially molders
- Lack of access to technological advancement in materials and automation
- Import from China is a continuous threat to the local manufacturers which is getting a sizable share in the electrical fittings market

3 Institutional Setup**3.1 Entrepreneurs Associations****Electrical Fittings Manufacturers Association, Sargodha (Informal group not registered)**

Address: 22 Block, Eid Gah Road, Near Zain Enterprises, Sargodha.

Tel: (+92 48) 3701766

Sargodha Chamber of Commerce and industry (SCCI)

Address: House. No. 2, Main PAF Road, Sargodha

Tel: (+92 48) 9230 834-5

Web: www.scci.pk**3.2 Support Institutions****Regional Business Center (RBC) – Small & Medium Enterprises Development Authority (SMEDA)**

Address: House. No. 2, Main PAF Road, Sargodha

Tel: (+92 48) 9230 834-5

Web: www.smeda.org.pkEmail: rbcsgodha@gmail.com**Punjab Small Industries Corporation (PSIC)**

Address: Mela Mandi Road, Sargodha

Web: www.psic.gop.pk**Light Engineering Cluster Support Center, Sargodha (A Project of PSIC – Not functional)**

Address: Small Industrial Estate, Lahore Road, Sargodha

Web: www.psic.gop.pk**3.3 Financial Institutions**

Almost all the registered financial institutions of Pakistan have their branches in the cluster.



4 Major Issues and Problems

- Manufacturers of electrical fittings in Sargodha are using conventional machine tools for making dies. Because of conventional machine tools, they cannot design sophisticated dies, which is the requirement of special designs. They are not developing quality dies. Conventional die making method also increases the duration of die making and sometimes it takes more than one year. And even after this time, sometimes die fails in process of producing proper design products.
- The quality of local made die/mold is not good, which results in low quality products. Because of conventional die/mold making methods, they also face problems in standardization of the products.
- A few of the manufacturers are outsourcing their die/mold requirement from China but most of the units cannot afford this outsourcing so they are fully dependent on conventional die making.
- It is difficult for industry to produce new design products as per market requirement because die making takes long time.
- They are using old machines for manufacturing electrical fitting products and the capacity of these machines is very limited which is also hindering these units in entering export markets.
- There is no testing facility for checking mold hardness, metallographic and material testing of molds etc. Electric testing facilities (e.g. Voltage/Ampere Testing) are also not available.
- The education level of workers/labor working in this cluster is very low which also creates difficulties in learning and accepting new tools and techniques. There are no specific vocational training facilities for the training of workers of this cluster
- At present single cavity dies are being made on conventional machine tools. It is difficult to produce multi-cavity dies on conventional machine dies because machine tools cannot control sizes required for such dies.
- Currently they are using manual press for manufacturing bakelite products through compression mold. This machine is time consuming and labor unfriendly. In this machine each product takes specific amount of time to take the desired shape and strength. A small miscalculation on this stage can lead to disfigured or products with less than desired strength.
- Quality of contractors is poor because of usage of low quality sheet. They are using progressive dies for contractors, which is more time consuming and also require more labor.

5 Investment Opportunities in Cluster

The growing housing and construction sector at domestic levels offers many lucrative investment opportunities to the investors. Following are some potential projects.

- Local production of electrical fittings components like Screws, Pins, Springs, Holder ring, etc. to cater the increasing production of electrical fittings of various types.
- Import and manufacturing of Bakelite Powder has an enormous potential for investment.
- Printing and Packaging for electrical fittings packing can also be another potential trading activity.
- Manufacturing of Glass Tube for Energy Saver has unprecedented demand as currently 50-60 containers of Energy Saver are being imported from China.