In the name of God

Pre-feasibility study form

Plan Name: Alkaline and Lithium Batteries

Employer:

Consulting Company: Kavosh Consultants Co.

Project Address: Shahrekord Industrial Estate

Date: ۲۰۲۲

SUMMARY OF THE FEASIBILITY STUDY

	Feasibility Studies	
	Alkaline and Lithium Batteries	

General information
Project Title: Feasibility studies for the production of alkaline batteries and lithium batteries
Project capacity: two million units per year
Employment rate: ٤٨ people
Working days: ٢٨٩ days
Product uses: in various industries
Market
Global price of the product: about one dollar
Domestic demand: ten million units
Domestic production: five million units
Imports: $٦٩٩،٥٢٢
Export:-
Technical study
Land area: ٦٠٠٠
Building area: ٢٤٠٠
Main raw materials: lithium, aluminum, manganese, nickel, sodium, zinc, etc.
How to supply raw materials: internal-external
Power Requirement: ١،٠٠٠،٠٠٠ (kwh)
Water Requirement: ١٠٠٠٠٠(m^3)
Fuel Requirement: ١،٢٠٠،٠٠٠ (m^3)
Economical & Financial Study
Fixed investment amount: ١٠٠٤٣٩٦ million rials - ٢،٠٠٨،٧٩٢ euro
Working capital: ٧٧٨٠٣ million rials - ١٥٥،٦٠٦ euro
Total investment: ١٠٨٢١٩٩ million rials - ٢،١٦٤،٣٩٨ euro
Annual profit: ٢٩١٩٧١ million rials - ٥٨٣،٩٤٢ euro
Net present value (NPV): ٩٠١٨٣٢ million rials - ١،٨٠٣،٦٦٤ euro
Breakeven point (BEP): ٧٦٦٤٢٣ million rials - ١،٥٣٢،٨٤٧ euro
Internal Rate of Return(IRR): ٢٧٪
Investment Return Period: ٤ Years
Investment Sources Ratio Equity: ٣٠٪ Financing: ٧٠٪

CONTENTS	PAGE

INTRODUCTION	۵
۱- PRODUCT INTRODUCTION	۵
۱-۱-PRODUCT NAME AND CODE (ISIC ۳)	۱۰
۱-۲-CUSTOMS TARIFF NUMBER	۱۰
۱-۳-IMPORT AND EXPORT CONDITIONS	۱۰
۱-٤- REVIEW AND PRESENTATION OF STANDARDS (NATIONAL OR INTERNATIONAL)	۱۱
۱-۵- REVIEWING AND PROVIDING NECESSARY INFORMATION ON DOMESTIC AND GLOBAL PRODUCTION PRICES AS WELL AS GLOBAL PRODUCT PRICES	۱۱
۱-٦- EXPLAIN THE USES OF THE PRODUCT	۱۱
۱-۷-EXAMINE ALTERNATIVE PRODUCTS AND ANALYZE THEIR EFFECTS ON PRODUCT CONSUMPTION	۱۳
۱-۸-STRATEGIC IMPORTANCE OF GOODS IN IRAN AND COUNTRIES OF THE REGION	۱۴
۱-۹-MAJOR MANUFACTURING AND CONSUMER COUNTRIES	۱۴
۲- SUPPLY AND DEMAND SITUATION IN IRAN AND COUNTRIES IN THE REGION	۱۸
۲-۱-AN EXAMINATION OF EXPLOITATION CAPACITY AND PRODUCTION PROCESS FROM THE BEGINNING OF THE THIRD DEVELPOMENT PLAN TO NOW	۱۸
۲-۲-CHECK THE STATUS OF NEW PROJECTS AND ONGOING DEVELOPMENT PLANS	۱۸
۲-۳-REVIEWING THE PROCESS OF PRODUCT IMPORTATION	۱۸
۲-٤-MONTORING CONSUMPTION TRENDS	۱۹
۲-۵-INVESTIGATE THE EXPORT AND THE POSSIBILITY OF ITS DEVELOPMENT	۲۰
۲-٦- PRODUCT REQUIREMENT CHECK WITH EXPORT PRIORITY	۲۰
۳-OVERVIEW OF TECHNOLOGY AND METHODS OF PRODUCTION AND	۲۱

SUPPLY IN THE COUNTRY AND COMPARISON WITH OTHER COUNTRIES	
٤-DETERMINING THE STRENGTHS AND WEAKNESSES OF CONVENTIONAL TECHNOLOGIES IN THE PRODUCT MANUFACTURING PROCESS	٢٣
٥- INVESTIGATE AND DETERMINE THE MINIMUM ECONOMIC CAPACITY, INCLUDING ESTIMATING THE VOLUME OF FIXED INVESTMENT IN RIAL AND FOREIGN CURRENCY	٢٤
٦-THE AMOUNT OF RAW MATERIAL NEEDED ANNUALLY AND WHERE IT IS SUPPLIED	٣٠
٧-RISK ANALYSIS OF PROJECT IMPLEMENTATION	٣٠
٨- HUMAN RESOURCES AND NUMBER OF JOBS	٣٠
٩- CHECK AND DETERMINE THE AMOUNT OF WATER, ELECTRICITY, FUEL AND ...	٣١
١٠- CONDITIONS OF ECONOMIC AND COMMERCIAL SUPPORT	٣٢
١٠-١- CUSTOMS TARIFF SUPPORT (PRODUCTS AND MACHINES) WITH GLOBAL TARIFFS	٣٢
١٠-٢- FINANCIAL SUPPORT (EXISTING UNITS AND PLANS) OF BANKS - INVESTOR COMPANIES	٣٢
١١-ANALYZING AND PRESENTING FINAL CONCLUSIONS AND PROPOSALS FOR THE CONSTRUCTION OF NEW UNITS	٣٣

Introduction

Feasibility studies are expert studies that are carried out prior to the implementation of economic investment plans. In these studies, from the market, technical, financial and economic point of view, the plan is analyzed and its results used as a basis for investor decision making.

The present report is a feasibility study of Alkaline and lithium batteries. These studies have been prepared in the framework of feasibility studies methodology and according to the above methodology, the economic capacities and volume of investments required to execute the project will be estimated and presented so that investors and interested stakeholders can obtain all the information needed. Earn money and start investing in open-ended, open-minded economic investment. It is hoped that these auxiliary studies, however small, will contribute to the development of our country.

۱ -Product Introduction

Introduction of batteries

There are generators that convert chemical energy into electrical energy. Batteries are usually created by putting at least two different metal (or alloy) plates together in a chemical solution. One of these two plates has more electron-giving properties (positive with anode) and the other has more electron-receiving properties (negative or cathode). The chemical solution that creates a connection between these two plates is called an electrolyte.

Classification of batteries

Batteries are classified in different ways, the following are the most important classification methods.

In terms of electrolyte status:

Dry electrolyte battery These types of batteries are solid like pen batteries

Wet batteries have liquid electrolyte like the batteries used in cars

In terms of type of electrolyte and plates:

lead acid battery, nickel-cadmium battery, zinc-air battery, alkaline battery and...

Introduction of lithium batteries

It is a rechargeable battery in which lithium ions move from the negative electrode to the positive electrode during discharge and vice versa during charging. Lithium batteries provide the highest energy density, almost twice the energy available from nickel-cadmium batteries. They do not

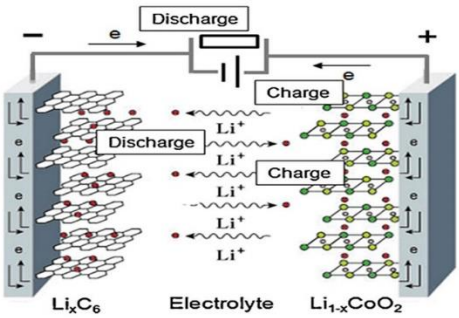
require full discharge and higher current can be used for charging and discharging without damaging the battery. They have little potential drop during discharge, do not need a break-in period, and do not know about the battery memory issue. You can charge a lithium battery at any time without affecting the performance of the battery, but because lithium batteries usually have a charge/discharge life of ۳۰۰ to ۵۰۰ cycles, and if the battery is charged early and before discharge, the battery life Battery life decreases. Also, if charging continues after being full, the battery will be damaged and its life will be reduced, that's why smart protective circuits are used to charge them so that the charging current is cut off after being filled and the battery is not overcharged. Although many lithium battery manufacturers quote a battery life of up to three years, some consumers have reported a life of up to ۱۸ months.

Researchers are trying to improve the ability of batteries to store energy per unit of volume and per unit of mass. Therefore, for this purpose, it is necessary to increase the operating voltage or the voltage of the battery without increasing its mass or volume. Lithium batteries have high power density, energy density and inherent specific energy.

Currently, the lithium ion battery is the most prominent battery in terms of application and research and development due to its excellent characteristics.

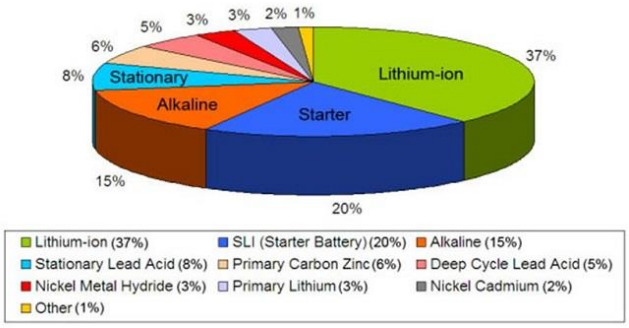
Demonstration of reactions and performance of lithium-ion batteries

To generate current in a battery, the entire cycle of ions, electrons and reactions must go through. In the discharge mode, the lithium atom present in the graphite layers must be removed from the anode (graphite) and converted into lithium ion, then the ion in the electrolyte and the electron released from the reaction move in the external circuit. The lithium ion reaches the cathode through the electrolyte and is placed inside the cathode structure, and the electron enters the cathode through the external circuit and regenerates the cathode. During charging, all reactions are photographed.



Due to the presence of lithium ion in the reactions, this type of battery is called lithium ion (LIB) Lithium Ion Battery. While primary batteries, which use lithium metal itself as anode, are called lithium batteries. In the lithium ion battery, because the oxidation reaction of the lithium atom still occurs (but this time in graphite instead of the lithium metal piece), it has a voltage equal to ۰٫۰۵ V

to ٠,١ V more than the lithium metal piece. But the capacity of graphite is ٣٦٠mAh/g, which is almost ٠,١ of the capacity of lithium metal. The capacity is low because graphite cannot store a large amount of lithium. Because the capacity depends exactly on the number of lithium that can be stored. But due to the voltage very close to the lithium metal piece, it provides high energy density. So that the lithium ion battery has three times the voltage of the nickel metal hydride battery and has four times the energy density of the lead acid battery. The above advantages have made the lithium-ion battery to be considered as one of the most widely used batteries, which is constantly increasing its use, and most of the research and investments are focused on it. The following figure from several years ago shows the use of lithium batteries, which is a significant contribution.



Types of lithium batteries:

- Lithium-air battery
- Lithium-ion battery
- Lithium iron phosphate battery
- Lithium-sulfur battery
- Lithium–titanate battery

Features and benefits of lithium batteries

Among the characteristics and advantages of lithium batteries, the following can be mentioned:

- Good efficiency in low and high temperature
- Small volume and light weight
- Ability to store a lot of energy
- Short lifespan of about ٤٠٠ charge and discharge cycles

• High weight and volume energy density

• The voltage of each cell is ٣,٧ volts, high current intensity

• Providing high voltages up to ٤٠٠ volts

• High safety factor

• Sealed

• Its low explosion percentage

• Operating temperature ٢٥oc - ٧٠oc

• High quality

• A suitable option to replace lead acid batteries.

• Long life of the chamber

What is an alkaline battery?

If we want to describe iAlkaline battery in one word, we should only use the word alkaline, the reason for this is that the materials of these batteries consist of alkaline electrolytes.

Alkaline battery is a type of non-rechargeable battery that derives its energy from the reaction between zinc metal and manganese dioxide and was introduced as a product available to the public in the ١٩٦٠s. Currently, billions are produced annually and are popular. are the world's most domestic batteries. You can find them in remote controls, toys, cameras, radios, flashlights and more – in disposable or rechargeable versions.

Alkaline battery structure review

If you want to open this model of battery and check its structure, you will encounter the following components:

• Battery Poles: There is a metal protector on the outermost two ends of the battery, which is identified as the positive and negative poles of the battery.

• Valve: After the battery poles, you reach the valves that are connected to these poles. These valves are sometimes identified by names such as: collecting pin.

• Washer: This part can only be seen in the negative direction of the battery, the use of washers is that they are used to separate the negative pole of the battery from the housing, and with the help of washers, any pressure that may cause malfunction can be prevented. is to prevent

• Separator pin: In the middle part of the battery, a conductive ion separator is used, the location of this separator is such that it is completely placed in the alkaline electrolyte.

• Cathodic material: after the separator and on the outer surface and above it, a cathode material made of manganese-based paste is placed.

• Anode material: and finally, near the positive pole of the battery, there is a material that is usually made on the basis of zinc.

How alkaline batteries work

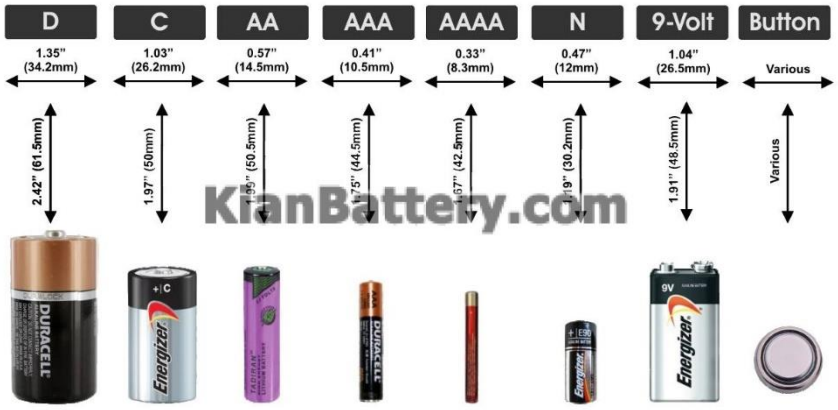
As we mentioned above, there are two materials in the batteries, anode and cathode, but these two materials mean the + and - electrodes, the chemical reaction and the energy that comes out of the battery due to the change of the ions in the anode. and is the cathode.

To be more precise, it is like this: changes occur in the anode part of the battery and these changes cause the appearance and accumulation of electrons, when these electrons are created, a disturbance occurs between the anode and the cathode. to give In addition to this, the generated electrons cause the surface of the battery to move.

According to the principles of work, the extra produced electrons should go to the cathode, but this process will not be possible and the electrons need to have a circuit for this.

When you put the battery in a device, the movement of these electrons is released and the necessary energy is created.

So according to the above, the performance of the alkaline battery is such that when you put a battery in your device, this electrical energy is created and the battery produces an electric current.



Size of alkaline batteries

Types of alkaline batteries

At the beginning, we mentioned that these batteries have many types and are produced with different functions.

In general, this battery comes in different types such as: pen batteries, half pen batteries, ۹ volt batteries.

۱-۱-Product Name and Code (ISIC ۳)

According to the information obtained from the Ministry of Industry, Mining and Trade, the ISIC code of alkaline battery and lithium battery products is ۳۱٤۰٤۱۲۳۱۸ .

۱-۲-Customs Tariff Number

According to the Export and Import Regulations Book of ۲۰۲۱ and the Chamber of Commerce, Industries, Mines and Agriculture website, the customs tariff code of Alkaline and lithium batteries is ۸٥٤۸۱۰۱۲.

۱-۳- IMPORT AND EXPORT CONDITIONS

Basic rights include customs duties, taxes, the right to register goods, various duties and other funds received from imported goods. The sum of these receipts and commercial profit, which is determined by the Cabinet of Ministers according to the relevant laws, is referred to as input rights. Import duty for alkaline battery and lithium battery is ٥٪.

۱-٤- REVIEW AND PRESENTATION OF STANDARDS (NATIONAL OR INTERNATIONAL)

There is no direct standard for Alkaline and lithium batteries. The standards are similar to this plan as follows:

Standard Name	Standard Number	Description
National standard	۱۰۲۱۸-۲	Cells and secondary batteries containing alkaline electrolyte or other non-acidic electrolytes
National standard	۱۰۲۱۹	Safety requirements for portable sealed secondary cells and batteries made from them.
National standard	۱۰۴۲۵-۴۸۲	For use in portable applications - Part ۲: Lithium systems
National standard	۱۰۷۶۴-۱	Alkaline batteries and secondary cells or other non-acidic electrolytes, prismatic nickel-cadmium single cells equipped with open gas combination system
National standard	۳۵۹۷-۴	Electrotechnical Vocabulary - Part ٤٨٢ - Primary and secondary cells and batteries

۱-۵- REVIEWING AND PROVIDING NECESSARY INFORMATION ON DOMESTIC AND GLOBAL PRODUCTION PRICES AS WELL AS GLOBAL PRODUCT PRICES

There are many types of batteries. For example, the domestic price for a quality lithium battery product is about ۲۵ thousand tomans. The global price is about one dollar.

۱-٦- EXPLAIN THE USES OF THE PRODUCT

Application of lithium batteries in civilian industries

- Types of cell phone batteries
- Types of computers
- Bike
- Motorcycles and electric cars
- Renewable electricity production systems such as solar and wind energy storage
- Power banks
- UPS and energy supply of telecommunication systems and mobile phone networks
- And ...

Application of lithium batteries in military industries

Among the applications of lithium batteries, the following can be mentioned:

• Experimental equipment

• Navigation equipment

• Gas masks

• Radar

• Satellite wireless

• Very powerful speakers

• Memory backup

 Global positioning system

• Electronic communication equipment

• Digital messaging equipment

• UHF radios

• Chemical agent monitors

• Night vision equipment

• Rescue wireless / world surveillance

• Information terminals

• Dual-use wireless (SINCGARS)

• Ammunition

• The driving force of an unmanned aircraft

• Laser weapons

• Military medical devices

• Fuses and tactical weapons

• Transmitters

• Observation towers

• Mobile equipment

• Weapons engine

• satellites

Where is the use of alkaline batteries?

These batteries have many different uses, most of which are used in electrical appliances.

In addition, due to the low cost of this battery, it is sometimes used as a power backup.

Some applications of alkaline batteries:

• In hours

• All kinds of electrical appliances

• Controls

• Children's toys

• Some camera models

• Technical tests

• And. ..

۱-۷-EXAMINE ALTERNATIVE PRODUCTS AND ANALYZE THEIR EFFECTS ON PRODUCT CONSUMPTION

The only alternative to batteries is electricity, but they cannot be compared to each other because each one is used depending on the type of activity.

۱-۸-STRATEGIC IMPORTANCE OF GOODS IN IRAN AND COUNTRIES OF THE REGION

Currently, we have reached a very favorable position in the development of the battery industry in the country, especially in the field of export. If we want to have an export market, it will be more important to pay attention to the industry of alkaline and lithium batteries. The battery industry, especially alkaline and lithium batteries, is a revolutionary industry that has high added

value and a good market in the country. Now we have new horizons in the industry of alkaline and lithium batteries. By comparing this industry with other industries, we find that the investment return rate of this industry is very favorable and satisfactory. The employment rate of this industry is also very favorable compared to other industries, for example, in Japan with ۳۵،۷۰۰ active personnel in this industry. After that, the countries of China and Korea are in the next ranks with ۳۳،۲۰۰ and ۱۷،۶۰۰ personnel, respectively. The safe profit margin of the industry is also very favorable considering that it is higher than the current inflation rate in the country.

Alkaline and lithium batteries have many advantages due to their reasonable price and commercial nature. Due to its great importance, all kinds of researches have been expanded on new areas of batteries, including alkaline and lithium batteries. Considering that these energies do not have an ideal form, but their use creates employment and reduces the amount of environmental pollution. The strategic importance of the use of alkaline and lithium batteries in our country, like other developed countries, has been of considerable importance in such a way that the government has made the necessary planning in the sixth development plan, therefore, according to the global policies of the development of these batteries in In order to solve the problems and create employment in our country, it will be inevitable. The studies conducted in this regard have indicated that the development of the use of alkaline and lithium batteries can play a significant role in increasing the security level of the country's energy system. Altogether, according to the explanations provided, alkaline and lithium batteries have a great strategic importance because, as mentioned in the market section, the use of these batteries is increasing day by day, and the countries that are in the battery industry Alkaline and lithium investors will naturally get a lot of profit in this field in the near future.

۱-۹-MAJOR MANUFACTURING AND CONSUMER COUNTRIES

Survey of the main countries producing alkaline and lithium batteries in the world

Japan

Japan is the main producer of alkaline and lithium batteries in the world. In this country, Sanyo, Sony, Panasonic and Hitachi companies are active in this field. Together, these companies have about ٤٨٪ of the global market share. Of course, if we consider other Japanese companies active in the alkaline and lithium battery industry, the share of this country will increase to about ٥٧٪ of the global market share. This indicates that more than half of the global market of alkaline and lithium batteries belongs to Japanese companies. Although the current market situation is completely dominated by Japanese companies, it is expected that the market share of Japanese companies will decrease in the future due to the competitive environment and the expansion of Chinese and Korean companies.

china

This country does not have a long history in the production of alkaline and lithium batteries. This country has entered this field for a short time and has grown significantly in this field in this short period of time. In this country, BYD and BAK companies as well as ATL are more prominent in the field of alkaline and lithium batteries than other Chinese companies. The three main companies mentioned together account for about ١١٪ of the global market share. Of course, considering other Chinese companies, it increases to about ١٣٪. This percentage is not at all comparable to Japan's ٥٧٪ share, but it should be noted that the growth of Chinese companies in this field is very significant, so that in the last three years, the production of Chinese companies has doubled. has been For this reason, it is expected that in the future of the alkaline and lithium battery industry, Chinese companies will have a much wider role than the current situation. It should be noted that Chinese companies are generally looking for a strategy of low prices. That is, they offer their products at a cheaper price than Chinese and Korean companies.

South Korea

South Korea is also very active in the industry of alkaline and lithium batteries. Famous companies such as Samsung and LG operate in this country. The main Korean companies active in the alkaline and lithium battery industry, taking into account other Korean companies, have about ١٧٪ of the market share. This shows that Korean companies are about ٥٪ more successful than Chinese companies in this field and there is a very strong competition between Chinese and Korean companies in this field. It should be noted that Korean companies have made very good innovations in the alkaline and lithium battery industry in recent years, which will make the future of the alkaline and lithium battery industry and the prospects of Korean companies active in this The context is very positive.

America

This country has not done any special activity in the field of alkaline and lithium batteries in the commercial field. Due to the fact that production costs in this country are higher than in China, Japan and Korea, American companies have not been able to be very successful in business. But it seems that this country focuses on the lithium battery industry more in the military industry. Considering the sensitivities of the military industry, this country is trying to procure all the tools and equipment used in the military industry from within the country, and lithium batteries are no exception to this.

Germany

This country has already made a good plan for the production of alkaline and lithium batteries. The most important producer and active company in this field is Siemens. Of course, considering that

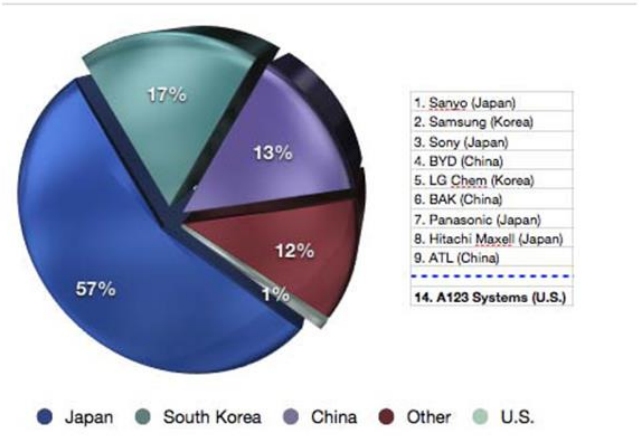
the German approach has always been to produce high-quality products, they usually have a higher price than other companies, and for this reason, they can sell their products more in the European and North American markets.

Iran

Our country has not done much activity in the field of alkaline and lithium batteries industry. Some time ago, a large company in this field was launched in the country, which was explained in the relevant section. If other units are set up in our country in the field of lithium batteries, we can get the regional market, including Turkey, Azerbaijan, Arab countries of the Persian Gulf, Iraq, etc. Considering that the main producing countries in this field are far away from this region, it is easy to deal with them in terms of price.

Market size

The figure below shows the market share of alkaline and lithium batteries worldwide. As can be seen in the above figure, the names of the countries can be seen along with the companies, which is ranked first by Sanyo from Japan. After that, Samsung Korea and Sony Japan are in the third place.



Major consumer countries

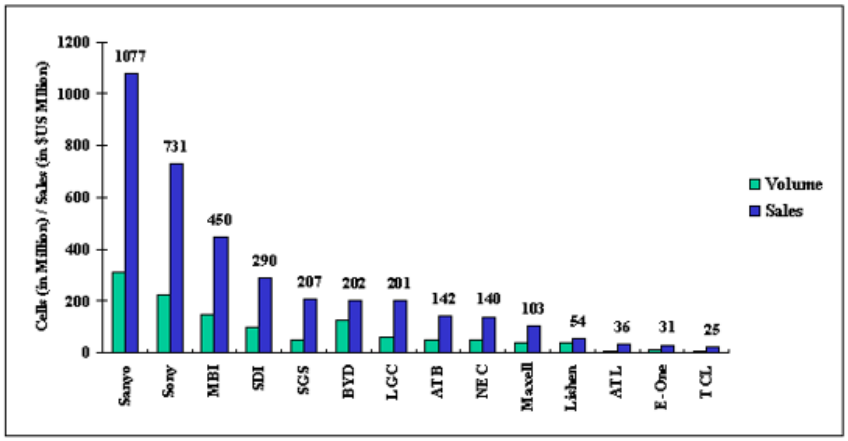
china

America

It should be noted that the names of these countries have been extracted from the report of the World Trade Organization website.

State of the global battery market

The following figure shows the largest producers of alkaline and lithium batteries. According to this figure, the main producer is the Sanyo company of Japan.



The figure below shows the ten main companies that have recently started to operate in the lithium and alkaline battery industry, taking into account the sales and manpower employed.

U.S. startup firms in the lithium-ion battery industry

Company Name	U.S. Headquarters		Total U.S. employment	Total U.S. sales	Battery components manufactured	Capital	Year Established
ActaCell	Austin	TX	9	N/A	Battery cell	$5.8	2007
Amprius	Menlo Park	CA	N/A	N/A	Anode active material	$3.0	2008
Arieva	Mountain View	CA	5	1	Lithium-ion battery pack; electronics; soft ware components	$7.0	2007
Contour Energy Systems (formerly CFX Battery)	Azusa	CA	N/A	N/A	Battery cell	$20.0	2007
Dow Kokam	Lees Summit	MO	N/A	N/A	Lithium-ion battery pack; battery cell; cathode active material	N/A	2009
EnerG2, Inc.	Albany	OR	19	2.9	Electrolyte	$32.0	2009
Envia Systems	Hayward	CA	5	1	Battery cell	$12.7	2007
Farasis Energy	Hayward	CA	N/A	N/A	Battery cell	$0.75	2003
Flux Power	Vista	CA	10	2.8	Electronics	N/A	N/A
K2 Energy Solutions	Henderson	NV	18	1.4	Anode active material	$3.2	2006
Leyden Energy	Fremont	CA	5	2.5	Battery cell	$4.5	2007
Planar Energy	Orlando	FL	10	0	Solid state batteries	$4.4	2007
Porous Power Technologies	Plymouth Meeting	PA	N/A	N/A	Separator	$3.5	2008
Prieto Battery	Fort Collins	CO	N/A	N/A	Anode Active material	$0.9	2008
Qualion	Sylmar	CA	80	10	Lithium-ion battery pack; Battery cell	$20.0	1998

۲- SUPPLY AND DEMAND SITUATION IN IRAN AND COUNTRIES IN THE REGION

۲-۱-AN EXAMINATION OF EXPLOITATION CAPACITY AND PRODUCTION PROCESS FROM THE BEGINNING OF THE THIRD DEVELPOMENT PLAN TO NOW

The following figure and table show the specifications and capacity of units active in the field of Alkaline and lithium batteries based on the statistics of the Ministry of Industry, Mines and Trade:

State	Number of units	capacity (number)
Special Economic Zone	٤	٥،٠٥١،٠٠٠
Semnan	١	٣،٥٠٠
Total	٥	٥،٠٥٤،٥٠٠

Source: Ministry of Industry, Mining and Commerce - Statistics and Information Center

۲-۲-CHECK THE STATUS OF NEW PROJECTS AND ONGOING DEVELOPMENT PLANS

By referring to the industrial database of the Ministry of Industry, Mines and Trade, the status and specifications of new projects creating Alkaline and lithium batteries have been collected and entered in the following table:

State	Number of units	capacity (number)
Semnan	٦	٨،٧٠٠،٠٠٠
Alborz	١	٥،٠٠٠،٠٠٠
Western Azerbaijan	٢	٤،٠٠٠،٠٠٠
Lorestan	١	١،٠٠٠،٠٠٠
Khuzestan	١	٥٠٠،٠٠٠
Fars	٢	٣٠٠،٠٠٠
Ardabil	١	٥،٠٠٠
Total	١٤	١٩،٥٠٥،٠٠٠

۲-۳-REVIEWING THE PROCESS OF PRODUCT IMPORTATION

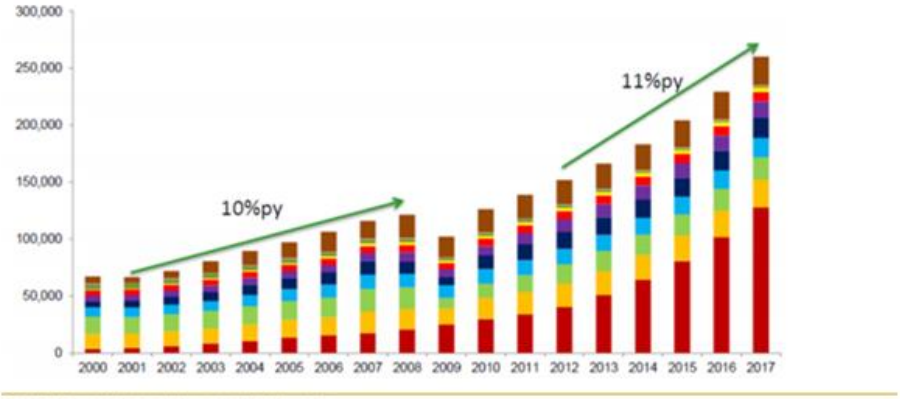
According to the Chamber of Commerce, Industries, Mines and Agriculture, the import statistics for the last five years are as follows:

Year	Weight (kg)	Rial value	Dollar value
۲۰۱۷	۳۶،۱۴۱،۰۷۳۱	۵۴۶،۹۷۰،۱۱۵،۸۸۷	۷۲۶،۲۹۸،۰۲۶
۲۰۱۸	۴،۰۷۹۴،۳۵۷	۰۲۲،۴۲۳،۱۰۶،۱۴۷	۸۷۰،۵۵۶،۰۳
۲۰۱۹	۱،۶۰۳،۴۴۸	۰۰۰،۱۲۵،۹۷۸،۱۵۹	۸۲۵،۲۷۹،۰۱
۲۰۲۰	۶۷۳،۷۳۰	۲۴۹،۴۵۱،۱۱۶،۳۰	۰۵۸،۷۱۷
۲۰۲۱	۵۳۳،۶۷۰	۰۲۰،۹۱۲،۳۷۹،۲۹	۵۲۲،۶۹۹

Source: Tehran Chamber of Commerce, Industries, Mines and Agriculture http://www.tccim.ir

٢-٤-MONTORING CONSUMPTION TRENDS

The figure below shows the global consumption of alkaline and lithium batteries from ٢٠٠٠ to ٢٠١٧. The increasing trend of consumption is quite striking and clear. This figure shows that the future prospects of this industry are quite clear. Different colors are different types of alkaline and lithium batteries.



Source: Lithium Market Outlook 2017, Roskill Information

Demand status of lithium batteries

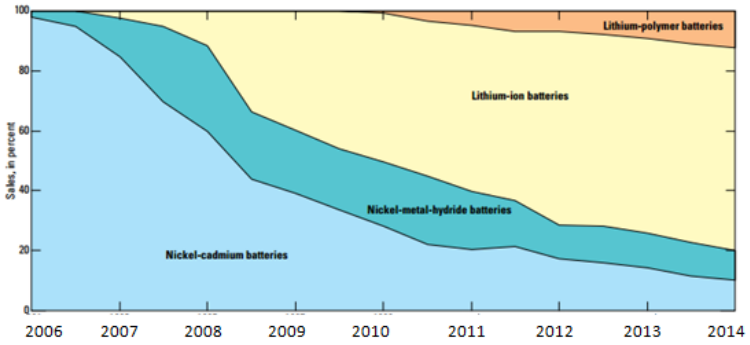
The figure below shows the status of demand for lithium batteries in ٢٠١١ and ٢٠٢٥. By comparing the statistics of these two dates, it shows the future prospects of this industry. In this figure, the consumption trend of lithium batteries for different applications is shown.

Battery Demand for Lithium

Application / Tonnes LCE	2011	2025	CAGR 2011-2025
Batteries for Portable Devices	30,416	111,176	9.7%
Batteries for Grid	500	7,500	21.3%
Batteries for Hybrid and Electric Vehicles	6,967	204,901	27.3%
Other Lithium Applications	91,400	174,994	4.7%
Total Lithium Demand	**129,283**	**498,571**	**10.1%**

Source: signumBOX, January 2012

The figure below shows the consumption trend of rechargeable batteries from ٢٠٠٦ to ٢٠١٤. This figure shows that the lithium batteries marked with cream color have the largest volume of consumption.



۲-۵-INVESTIGATE THE EXPORT PROCESS OF THE PRODUCT AND THE POSSIBILITY OF ITS DEVELOPMENT

According to the Chamber of Commerce, Industries, Mines and Agriculture, the export statistics for the last five years are as follows:

Year	Weight (kg)	Rial value	Dollar value
۲۰۱۷	۰	۰	۰
۲۰۱۸	۰	۰	۰
۲۰۱۹	۰	۰	۰
۲۰۲۰	۴۰۱۸۸	۶۳۹۰۵۱۵۰۵۶۵	۳۰۲۴۰
۲۰۲۱	۰	۰	۰

Source: Tehran Chamber of Commerce, Industries, Mines and Agriculture http://www.tccim.ir

۲-۶- PRODUCT REQUIREMENT CHECK WITH EXPORT PRIORITY

Many countries that in the contemporary period, especially in the past few decades, have been able to follow the path of progress and development, have accurately implemented specific economic, social and political programs, and after going through medium- or long-term programs. Progress and development have been achieved.

The first proposed development plan after the Islamic Revolution for the years ۱۹۸۳-۱۹۸۷ was prepared. The last development plan (Sixth Development Plan) was approved by the Islamic Consultative Assembly in March ۲۰۱۷.

In many developed countries, exports are the main focus of development and are very important in the presence of that country in global markets. Domestic production and its arena in the global competitive market, or in other words, exports, is one of the factors that can make countries independent. The importance and necessity of the presence of goods made by a country in the world market and the atmosphere of the international economy are among the most important factors of development. The role of exports in this regard is so important that many export

experts consider the only successful path to economic development of a country in the global market.

The most important issue for any country like Iran is to achieve economic development and to have an economic, productive and export-oriented system. In order to achieve this, first of all, it is necessary to meet the domestic needs of the country and to expand the export of goods and services in excess of domestic consumption. To achieve a society where there is no poverty, unemployment and backwardness, efforts must be made for its economic growth. Along with economic growth, there must be justice and empowerment of the people of the society to manage their lives.

Exports play an important role in production and employment, so they require a lot of attention to expand and have an active presence in global markets. Exporters in the economic field should also be encouraged.

At present, we can see a very good export of Alkaline and lithium batteries. Because there is a lot of demand in different countries and each of them is trying to get in touch with first-hand producers. This can help Iran's non-oil exports and boost production in the country.

Of course, it should be noted that in order to reach these markets and develop exports, one should pay attention to the following points:

- Alkaline and lithium batteries should have a favorable price so that they can have a competitive advantage compared to top brands.
- The quality of alkaline and lithium batteries produced must be at a high level. Today, countries return low quality products.
- For the large scale export of alkaline and lithium batteries, several investments must be made to identify the brand in the target countries.
- Obviously, for the export of alkaline and lithium batteries, the standards of the target market must be fully considered.

۳-OVERVIEW OF TECHNOLOGY AND METHODS OF PRODUCTION AND SUPPLY IN THE COUNTRY AND COMPARISON WITH OTHER COUNTRIES

۱-Slurry preparation: mixing

In the first step, AM active materials, binder (as glue) and a conductive material are mixed together in a specific mass ratio to prepare the CE composite electrode. The morphology of this electrode is related to the electrochemical functions of the battery. So, while mixing, the technical specifications, the nature of the solvent and the viscosity of the slurry should be considered. In order to compensate for the low electrical conductivity of active materials, additives with conductive electrons are usually used in the preparation of composite electrodes for lithium-ion batteries. These additives can increase battery charge capacity, charge discharge rate and charge cycle performance. These electron-conductive additives are mainly conductive carbon particles, such as acetylene black, Ketjen black, super P, carbon graphite, carbon

nanotubes, etc. However, these additives have a large surface area, which can combine with electrolytes and cause parasitic reactions. The use of fiber-shaped carbon instead of spherical black carbon increases the permeability of the electrode matrix.

٢- Coating and drying

Using casting tape, electrode slurry or paste is covered on the current collectors: copper is used for the negative electrode and aluminum is used for the positive electrodes. During this process, it is necessary to control the solvent concentration. After the powders are dispersed, the paste is spread on the flow collector using a surgical blade of selected thickness. Castings should be allowed to dry to remove residual solvents. At this stage, it is important to obtain a homogeneous coating thickness.

٣- Calendaring

Calendering is the main process of producing sheets, tapes and continuous films, in which the molten material is drawn through a narrow and stuck together area between two uneven rollers and becomes a sheet or film with a very high surface quality under the drag flow. . During calendering, the electrodes are compressed by moving between two huge cylindrical rollers. By applying high pressure (٣٠٠-٢٠٠٠ kg/cm٢), the electrode thickness is reduced to a controlled value. Meanwhile, the porosity of the electrode decreases to about ٤٠٪. As a result, the adhesion of the electrode material is improved and the density is increased.

٤- Cut or slitter or punch

At this stage, the electrodes are cut or punched into strips of the desired shellac. In order for the edges of the electrodes not to be scratched, the cutting operation must be done cleanly. Note that the negative electrodes are made slightly larger than the positive electrodes in order to prevent lithium deposition and the formation of corrosion and congression on the edges of the negative electrode.

٥-Montage

The electrodes are cut and stacked together with the separator. The stacked package of electrodes is placed in a housing or cover. This chamber is partially sealed to evacuate the gases that arise during construction.

٦-electrolyte injection, construction and moistening

Finally, electrolytes are injected. To achieve maximum wetting, it is important that the electrolyte completely penetrates and fills the pores in the separator and electrode. The non-wetted part of the active material reduces the specific surface area that reacts during battery operation, thereby increasing the battery's impedance.

The rapid growth of technology has affected all aspects of the companies active in the battery industry. Rapid changes in technology have changed the nature of work and computers, robots and fully automatic devices have replaced routine jobs. These tools have caused drastic changes in the type of skills needed by people and members of companies active in the battery industry. It is obvious that in order to face such a challenge, employees must be empowered, i.e. grow in all directions.

The figure below shows the international production costs of alkaline and lithium batteries from the initial stage to the discussion of after-sales services.

Lithium-ion battery cost breakdown

	Components	$/EV battery	Cost breakdown
Cell Components	Cathode	1,663	10%
	Anode	477	3%
	Electrolyte	447	3%
	Copper foil	184	1%
	Separator	608	4%
	Can header and terminals	1,050	6%
	Other materials	375	2%
	Total material	**4,803**	**29%**
Cells	Labor for cell manufacturing	2,586	16%
	Total cell	**7,390**	**45%**
Electronics	Mechanical components	2,053	12%
	Electrical Components	299	2%
	Electronics (battery mgmt. system)	1,381	8%
	Total Electronics	**3,733**	**22%**
Packs	Labor for pack manufacturing	268	2%
	Total Packs	**11,390**	**69%**
Warranty		228	**1%**
Gross Profit		4,979	**30%**
Total Cost		**16,596**	**100%**

Assumes production of approximately 100,000 25-kWh EV packs per year, using 180-Wh Nickel / Manganese / Cobalt (NMC cells).

Source: CGGC, based on (Deutsche Bank, 2009)

٤-DETERMINING THE STRENGTHS AND WEAKNESSES OF CONVENTIONAL TECHNOLOGIES IN THE PRODUCT MANUFACTURING PROCESS

Efficiency and high quality and low cost of Alkaline and lithium batteries, are among the most important advantages of the mentioned methods. The production of this product requires a strict quality management process, which is mentioned below.

The growth and development of the world's industries is largely due to the competition between industrial units. In this regard, every industrial unit tries to gain a greater share of the market by increasing the quality of its products, and this trend over time has improved the quality of products and, as a result, the growth of industrial societies. Quality control is performed to determine the correctness of the production process, according to the technical specifications

determined for the product. This operation causes to prevent the production of defective products, the wastage of capital is prevented and the finished price of the product is reduced.

In general, the objectives of quality control can be summarized as follows:

• Maintaining the established standards

• Diagnosing and improving deviations in the production process

• Diagnosing and improving non-standard products

• Evaluating the efficiency of the people of the units

In other words, it can be said that quality control means ensuring the supply and production of goods and services according to the standards.

It is determined and inspection is performed as one of the inseparable components of quality control in order to identify defects and provide the information needed for the quality control system in all industrial units.

The general inspection steps according to the status of each industry are as follows:

١) In the phase of handing over raw materials

٢) In the stage of starting production

٣) Before the start of operations

٤) Before starting irreversible operations

٥) Before the start of the operation that causes defects to be covered

٦) In the final stage of the work

Each of these inspection steps may be done at the operation site or laboratory.

In this unit, according to the characteristics of this industry, each of the necessary stages of quality control and the location of these tests are determined.

will be.

٥- INVESTIGATE AND DETERMINE THE MINIMUM ECONOMIC CAPACITY, INCLUDING ESTIMATING THE VOLUME OF FIXED INVESTMENT IN RIAL AND FOREIGN CURRENCY

EXPLANATION: EXCHANGE RATE BASED ON NIMA SYSTEM - DATED ٢٠٢٢-١١ - AMOUNT: ٥٠٠٠٠٠ RIALS

Project Investment Schedule:

Description	Cost (Million Rials)	Cost (Euro)
Land	٣٠٠٠٠	١٠٩،٤٨٩

Landscaping	۱۴۲۹۲	۵۲،۱۶۱
Construction	۷۰۹۰۰	۲۵۸،۷۵۹
Production line machinery and equipment	۳۵۰۰۰۰	۱،۲۷۷،۳۷۲
laboratory equipment	۵۰۰۰	۱۸،۲۴۸
Utilities	۸۵۰۰	۳۱،۰۲۲
transportation	۱۶۵۰۰	۶۰،۲۱۹
Office equipment	۵۱۸۰	۱۸،۹۰۵
Miscellaneous and unforeseen	۵۰۰۳۷	۱۸۲،۶۱۷
Total	۵۵۰۴۰۹	۲،۰۰۸،۷۹۲

The ground specification of the project implementation is as follows:

Description	Area (m ۲)	Unit Price (Rials)	Total (Million Rials)	Total (Euro)
Land	۳۰۰۰	۵/۰۰۰/۰۰۰	۳۰۰۰۰	۱۰۹،۴۸۹

The cost of landscaping is as follows:

Description	Area	Unit Price (Rials)	Total (Million Rials)	Total (Euro)
Digging and leveling	۶۰۰۰	۲۰۰۰۰۰۰	۱۲,۰۰۰	۴۳،۷۹۶

Fencing	۳۲۰	۳۰۰۰۰۰۰	۹۶۰	۳،۵۰٤
Asphalt and pavement paving	۳۳۰	۲۰۰۰۰۰۰	۶۶۰	۲،٤۰۹
Green space and lighting	۲۴۰	۲۸۰۰۰۰۰	۶۷۲	۲،٤۵۳
Total			۱۴۲۹۲	۵۲،۱٦۱

Building Information:

Description	Building type	Area	Unit Price (Rials)	Total (Million Rials)	Total (Euro)
Production	Niches	۱۵۰۰	۴۰۰۰۰۰۰۰	۶۰,۰۰۰	۲۱۸،۹۷۸
Raw materials and supplies	Niches	۶۵۰	۴۰۰۰۰۰۰۰	۲۶,۰۰۰	۹٤،۸۹۱
Office building and services	Official	۱۷۰	۸۰۰۰۰۰۰۰	۱۳,۶۰۰	٤۹،٦۳۵
Utilities	Niches	۵۰	۷۰۰۰۰۰۰۰	۳,۵۰۰	۱۲،۷۷٤
Guard		۳۰	۶۰۰۰۰۰۰۰	۱,۸۰۰	٦،۵٦۹
Total		۲۴۰۰		۱۰۴,۹۰۰	۳۸۲،۸٤۷

Utilities:

Description	Cost (Million Rials)	Cost (Euro)
Power Supply	۲۵۰۰	۹,۱۲۴
Water and Wastewater	۷۰۰	۲,۵۵۵
Fuel	۹۰۰	۳,۲۸۵
Heating and cooling equipment	۲۵۰۰	۹,۱۲۴
Protective equipment and security system	۴۰۰	۱,۴۶۰
Compressed air supply	۱۵۰۰	۵,۴۷۴
Total	۸۵۰۰	۳۱,۰۲۲

Transportation:

Description	Technical Specifications	Cost (Million Rials)	Cost (Euro)
Forklifts	۳ ton	۹۵۰۰	۳۴,۶۷۲
Pickup	Nissan	۳۵۰۰	۱۲,۷۷۴

Riding	Samand	۳۵۰۰	۱۲,۷۷۴
Total		۱۶۵۰۰	۶۰,۲۱۹

Equipment and Machinery:

Manufacturing machinery is the most important part of industrial investment. The machinery of each manufacturing complex determines the quality and variety of products, production technology, raw materials, and many of the methods, costs of production, and even the finished product price. Machinery selection is a critical and influential factor in the macroeconomic indicators of the plan. The cost of producing the machinery and equipment of the production line is estimated on the basis of inquiries from major manufacturing companies or reputable agencies. It also calculates the cost of procuring machinery, including shipping, installation, customs duties, and so on.

The world's leading companies producing the main equipment for the Alkaline and lithium batteries process can be listed as follows:

Xiamen Lith Machine Limited. Shenzhen Zoway Automation Machine Co., Ltd. ،Shandong Gelon Lib Co., LtdBut due to the capabilities of domestic specialists, the machinery of this project including reactors, furnaces, etc. can easily be supplied from Iran at a more reasonable cost. The price range for all of these companies is about ۱۰ percent. The price of machines for this process is given in the table below.

Number	Name	Required amoun	cost (million rials)	Rial sum (million rials)	Currency (Euro)	supply (domestic / foreign)
۱	Slurry preparation machines: mixing	۳	۲۵۰۰۰	۷۵۰۰۰	۲۱۸,۹۷۸	Local-Foreign
۲	Coating and drying machines	۲	۳۵۰۰۰	۷۰۰۰۰	۱۰۹,۴۸۹	
۳	Calendering machines	۲	۴۰۰۰۰	۸۰۰۰۰	۵۸,۳۹۴	
٤	Cutting or slitter and punch machines	۳	۱۵۰۰۰	۴۵۰۰۰	۱۰۹,۴۸۹	
٥	Assembly machines	۲	۱۰۰۰۰	۲۰۰۰۰	۳۶,۴۹۶	
٦	Electrolyte injection and moistening machines	۱	۳۰۰۰۰	۳۰۰۰۰	۱۰۹,۴۸۹	
۷	other	۱	۳۰۰۰۰	۳۰۰۰۰		
Total (million rials)			۳۵۰۰۰۰		۱,۲۷۷,۳۷۲	

laboratory equipment:

Number	Name	Currency (Euro)	Rial Cost (Million Rials)	Rial sum million) (rials
١	laboratory equipment	١٨،٢٤٨	٥٠٠٠	٥٠٠٠
٢				
Total		٥٠٠٠		

Office equipment:

Number	Name	The required amount	Rial cost per unit	Rial Cost (Million Rials	Currency (Euro)
١	All kinds of tables and chairs	٣٥	١٠٠	٣٥٠٠	١٢,٧٧٤
٢	All kinds of computers, printers and scanners	٩	٩٠	٨١٠	٢,٩٥٦
٣	Phone and fax	٧	٣٠	٢١٠	٧٦٦
٤	Fingerprint attendance device	١	٧٠	٧٠	٢٥٥
٥	Wireless network and internet equipment	١	٥٠	٥٠	١٨٢
٦	Office stationery	٤	١٠	٤٠	١٤٦
٧	Central control system	١	١٥٠	١٥٠	٥٤٧
٨	other	_	٣٠٠	٣٠٠	١,٠٩٥
Total (Million Rials)		٥١٨٠			١٨,٩٠٥

Working Capital Costs:

Name	Description	Cost (Million Rials)	Cost (Euro)
Raw materials and packaging	٦٠ Days	٣٣٣٣٣	١٢١،٦٥٣
salary	٣٠ Days	٥٣٤٤	١٩،٥٠٤

Energy costs	٣٠ Days	٨٥٨	٣،١٣١
revolving fund	١٥ Days	٣١٠١	١١،٣١٨
Total		٤٢٦٣٦	١٥٥،٦٠٦

Production costs:

Description	Cost (Million Rials)	Cost (Euro)
Cost of raw materials and packaging	٢٠٠٠٠٠	٧٢٩,٩٢٧
Salary Cost	٦٤١٢٤	٢٣٤,٠٢٩
Energy costs	١٠٣٠١	٣٧,٥٩٥
Cost of maintenance	٤١٨٥٣	١٥٢,٧٤٨
Unforeseen cost of production	٥٠١٧	١٨,٣١٠
Administrative and sales costs	٣٢١٣	١١,٧٢٦
Costs of financial facilities	٣٢٤٥	١١,٨٤٣
Insurance costs	٥٥٠٤	٢٠,٠٨٨
Depreciation cost	٥٠٠	١,٨٢٥
Depreciation expense before operation	٥٠٠٤	١٨,٢٦٣
Total	٣٣٨٧٦١	١,٢٣٦,٣٥٤

٦-THE AMOUNT OF RAW MATERIAL NEEDED ANNUALLY AND WHERE IT IS SUPPLIED

Number	Description	Consumption per unit product	Unit of consumption	Amount of Consumption Required for Total Capacity	Currency prices (Euro)	Rial equivalent (per unit)	Place of supply	Cost (Million Rials)
١	aluminium		Unit					

٢	Calcium	١		٢٠٠٠٠٠٠	٠,٢	١٠٠٠٠٠	Import Local	٢٠٠٠٠٠
٣	chloride							
٤	Lead							
٥	lithium							
٦	Manganese							
٧	nickel							
٨	sodium							
٩	spinel							
١٠	Tin							
١١	Titanate							
١٢	Vanadium							
١٣	Roy							
١٤	other							
Total (Million Rials)								٢٠٠٠٠٠٠
Total (Euro)								٧٢٩,٩٢٧

٧-RISK ANALYSIS OF PROJECT IMPLEMENTATION

Studies show that in the next year the market will be in short supply and there will be a greater need for imports. So it can be said that the implementation of new projects in this field is not very risky because in addition to the domestic market there is easily good potential to export this product to neighboring countries and if for any reason the applicant intends to undertake this plan, it is necessary to act with caution and superiority over other industrial units and by examining further the weaknesses and strengths as internal factors as well as opportunities and opportunities. Threats as external factors minimize project risk.

٨- HUMAN RESOURCES AND NUMBER OF JOBS

One important aspect of any industrial unit is its job creation, which is thoroughly examined in the market segment. Due to the nature of the industry and the need for ٢ shifts to work, it has been attempted to select the number of personnel in a manner that addresses the production needs of the two shifts. It has also been tried to use related specialties in different parts of production.

To calculate the amount of annual salaries and benefits, three shifts and other benefits have been added to the annual salary. For this purpose, the annual salary is set at ١٦,٤ months per year

.

Description	Gender	Number	Monthly salary per person (Million Rials)	Monthly salary (Million Rials)	Annual salaries (Million rials)	Annual salaries (Euro)

Managing Director	Man	۱	۲۰۰	۲۰۰	۳۲۸۰	۱۱,۹۷۱
financial manager	Man	۱	۱۴۰	۱۴۰	۲۲۹۶	۸,۳۸۰
Marketing Manager	Man	۱	۱۴۰	۱۴۰	۲۲۹۶	۸,۳۸۰
Financial, sales and administrative personnel	Female	۲	۱۰۰	۲۰۰	۳۲۸۰	۱۱,۹۷۱
warehouse keeper	Man	۲	۹۰	۱۸۰	۲۹۵۲	۱۰,۷۷۴
Line Administrator	Man	۳	۹۰	۲۷۰	۴۴۲۸	۱۶,۱۶۱
skilled worker	Man	۵	۸۰	۴۰۰	۶۵۶۰	۲۳,۹۴۲
Semi-skilled worker	Man	۱۰	۷۵	۷۵۰	۱۲۳۰۰	۴۴,۸۹۱
worker	Man	۱۵	۷۰	۱۰۵۰	۱۷۲۲۰	۶۲,۸۴۷
Service	Female	۲	۷۰	۱۴۰	۲۲۹۶	۸,۳۸۰
Guard	Man	۲	۷۵	۱۵۰	۲۴۶۰	۲۰۷,۶۹۳
Driver	Man	۲	۷۵	۱۵۰	۲۴۶۰	۸,۹۷۸
Secretary	Female	۲	۷۰	۱۴۰	۲۲۹۶	۸,۳۸۰
Total		۴۸			۶۴۱۲۴	۲۳۴,۰۲۹

۹- CHECK AND DETERMINE THE AMOUNT OF WATER, ELECTRICITY, FUEL AND ...

Description	Unit	annual consumption	Cost per unit in Rials	Total Cost (Million Rials)	Total Cost (Euro)
Power Consumption	KWh	۱/۰۰۰/۰۰۰	۹۳۹	۹۳۹	۳,۴۲۷
Water Consumption	Cubic meters	۱۰۰/۰۰۰	۳۳۶۲۲	۳۳۶۲۲	۱۲,۲۷۰
Gas	Cubic meters	۱/۲۰۰/۰۰۰	۵۰۰۰	۵۰۰۰	۲۱,۸۹۸
Total			۱۰۳۰۱		۳۷،۵۹۵

۱۰- CONDITIONS OF ECONOMIC AND COMMERCIAL SUPPORT

۱۰-۱- CUSTOMS TARIFF SUPPORT (PRODUCTS AND MACHINES) WITH GLOBAL TARIFFS

Support for fertilizer producers, especially Alkaline and lithium batteries, is part of the Agricultural Support Service Company program and is monitored periodically by a technical working group on behalf of the company and the Ministry of Agriculture and Water and Soil to monitor the quality of fertilizers. The agricultural support services company relies on domestic production and a significant reduction in fertilizer imports, including the supply of fertilizers, organic fertilizers, biofertilizers, microbes and more. Also, in most petrochemical companies, unfortunately, some of the raw materials and machinery needed are supplied from abroad, which come to Iran after initial tests and technical examinations, and in the absence of problems. Therefore, the customs duty received is about ١٠٪ of the total imported genus. It also requires payment of customs duties if the product is exported. Although in recent years appropriate incentives have been adopted to encourage domestic producers to export their products, which has led to increased exports, but more attention must be paid to this issue by the authorities.

١٠-٢- FINANCIAL SUPPORT (EXISTING UNITS AND PLANS) OF BANKS - INVESTOR COMPANIES

Long-term facilities to finance part of the investment costs for the creation or development of industrial, mining and tourism units or to provide the necessary conditions for optimal utilization of these units, the facility bank in foreign currency and rial in the form of an Islamic contract Grants.

Terms:

١- Only financial facility projects that have the necessary technical, financial and economic justification are granted.

٢- The granting of facilities to natural persons up to one billion rials shall be permitted and the payment of such facilities shall be exclusively permitted to legal persons.

٣- The Bank typically finances up to ٧٠٪ of the project's fixed capital investment as a facility, while ٣٠٪ of the total project investment (including fixed capital and working capital) must be provided by the applicant as paid-in company capital. .

٤- The repayment period of the facility is typically a maximum of ٥ years. It was the Bank's authority to change this period to suit the status of the plans.

٥- When applying for a facility, the applicant shall open a loan account.

٦-In general, ٣٠٪ of the total project investment must be financed by the investor and the bank can invest up to the remaining ٧٠٪.

Steps:

١-Acceptance: At this stage the applicant can apply to any bank branch and submit his / her application. If the plan is not on the priority list, the Bank agrees to provide the justification.

٢- Compilation of project justification report: Applicant prepares justification report through Bank Consulting Engineer companies.

٣- Acceptance: At this stage, the project justification report will be delivered to the branch with the required documentation.
٤- Evaluation and approval: The Bank's justification report will be reviewed and if approved, the facility payment will be approved by the competent authority.
٥- Contract: After providing the required documents and guarantees, the contract for granting the facility will be concluded.
٦- Payment: The project progress report will be prepared at the time specified by the consulting engineer and submitted to the bank. Once the progress report has been approved by the bank, payment is made as appropriate to the progress of the plan.

١١-ANALYZING AND PRESENTING FINAL CONCLUSIONS AND PROPOSALS FOR THE CONSTRUCTION OF NEW UNITS

- One of the basic principles of sustainable production is to improve soil quality from fertility and to return nutrients absorbed by plants to the soil. Fortunately, we are very successful in the field of biofertilizers in the country. The use of these fertilizers not only contributes to environmental sustainability, but also to food security. Due to the growing of the agricultural industry, the need for farmers to use different fertilizers such as Alkaline and lithium batteries is very high. Although the process of this product is not complicated, for unknown reasons this product is produced in small quantities in Iran and according to the Chamber of Commerce, Industry, Mines and Agriculture, its imports amounted to about ٤٧،٥٤٩،٣٦٢ kg in ٢٠١٨. Therefore, if access to the raw material, applicants are suggested to build one (or several) ٢٠،٠٠٠ tonnes (or even more) units in different areas (especially deprived areas). The plan is to start operating at ٦٠ percent capacity in the first year and increase below capacity in the following years, respectively.
- The plan is to start operating at ٦٠ percent capacity in the first year and increase below capacity in the following years, respectively.

Year	First Year	Second Year	third year	forth year	Fifth year
Capacity(%)	٦٠ %	٧٠ %	٨٠ %	٩٠ %	١٠٠ %
Production capacity (ton)	١٢٠٠٠٠٠	١٤٠٠٠٠٠	١٦٠٠٠٠٠	١٨٠٠٠٠٠	٢٠٠٠٠٠٠

prime cost	٣١٠ million rials – ٦٢ euro
Selling prices of products	١٦٩٧٩٠ million rials - ٣٣٩،٥٨٠ euro

Total Sales (Million Rials)	۹۱۲۴۰۹ million rials - ۱،۸۲٤،۸۱۸ euro
Percentage of sales at the point head to head	۸٤
Profit (Million Rials)	۹۳۴۱۶ million rials - ٥۸۳،۹٤۲euro
Gross Value Added (Million Rials)	۱۶۹۷۹۰ million rials - ۳۳۹,٥۸۰ euro
Net Value Added (Million Rials)	۹۳۴۱۶ million rials - ۱۸۶,۸۳۲ euro
Ratio of gross value added to total sales	۰/۱۹
Ratio of net added value to total sales	۰/۱۰
Ratio of gross value added to investment	۰/۱٦
Return of capital	٤