

Heirs of the Sun NOURI PETROCHEMICAL CO.

brief introduction







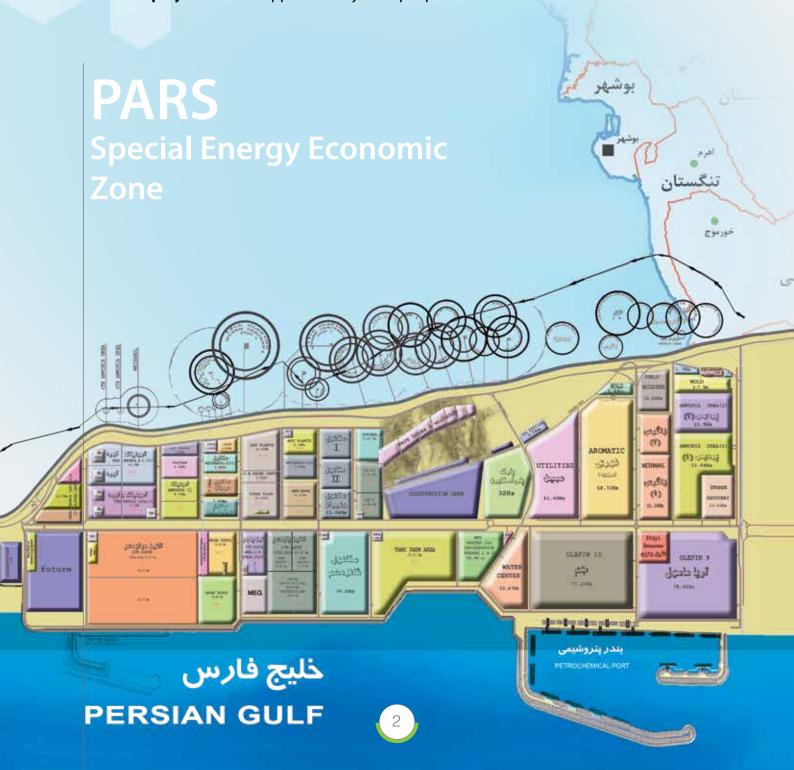
September 2021





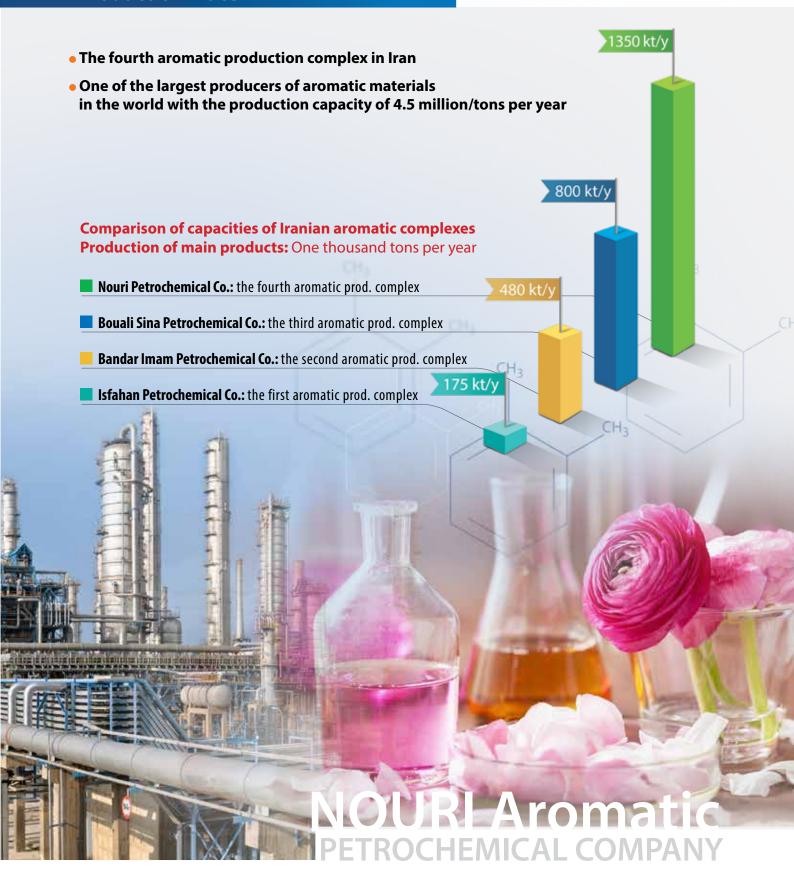
General Specifications

- Geographical Location: 280 km from the center of Bushehr province, Assalouyeh, Pars Special Economic Energy Zone
- Company Area: 61 hectares
- Main reason for manufacturing Nouri Petrochemical Co.: Increasing the value of the country's hydrocarbon capital (gas condensate)
- Initial investment: 8 thousand billion rials
- Direct Employment Rate: approximately 1200 people





Production Place





Extraordinary Features of Nouri Petrochemical Co.

- Adequate sources of food and energy supply in the region
- High production capacity
- Multi-product economics (diversity in company's products)
- Iran's privileged geographical location and access to international open water (Ease of export, reduction of shipping costs)





In 2007, the company's name was changed from Borzouyeh Petrochemical Company to Nouri Petrochemical Company at the same time with the official opening of this company in honor of the efforts of the great figure in the country's petrochemical industry, within living memory of the deceased Seyed Mahmood Nouri, the founder and former CEO of the fourth aromatic company in Iran. Accordingly, from the beginning of June 2021, the company acronym was changed from BPC to NOPC in order to match company's name with its trademark and the logo of Nouri Petrochemical Company (public company) was redesigned.

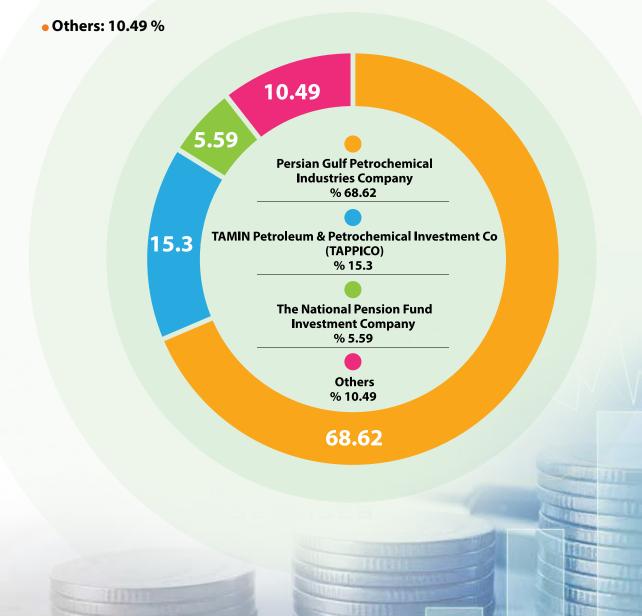




Company's Shareholders

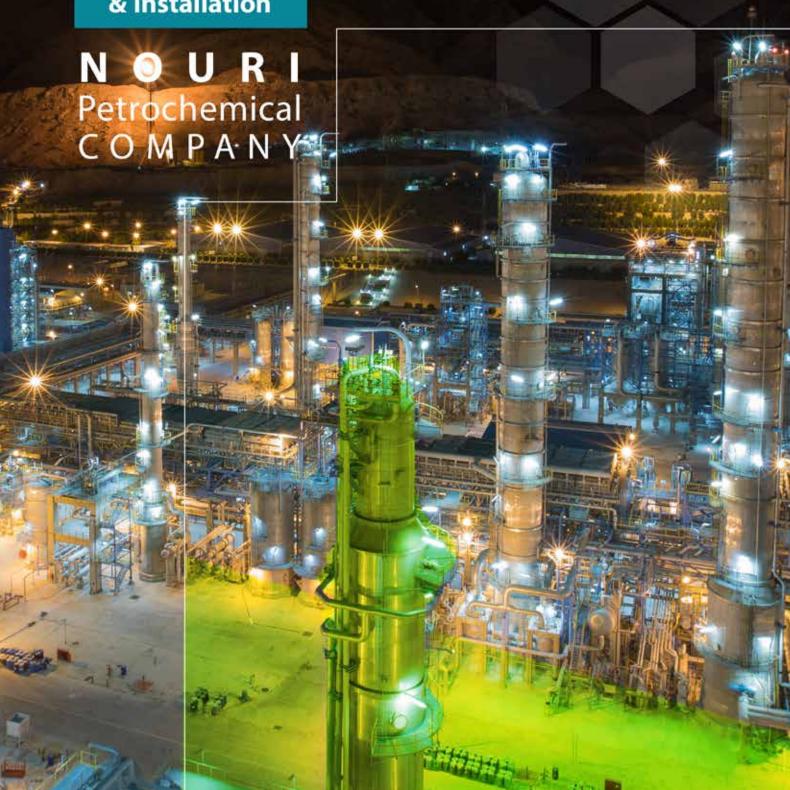
Considering the initial public offering of 10% of the company's shares on July 13, 2019 in Tehran Stock Exchange, the company's shareholders were listed based on the last meeting held on March19, 2021 as follows:

- Persian Gulf Petrochemical Industries Company: 68.62 %
- TAMIN Petroleum & Petrochemical Investment Co. (TAPPICO): 15.3 %
- The National Pension Fund Investment Company: 5.59 %





Steps of Establishment & Operation Construction & Installation





Steps of Establishment & Operation of Nouri Petrochemical Co.





Nouri Petrochemical Company Construction & Installation

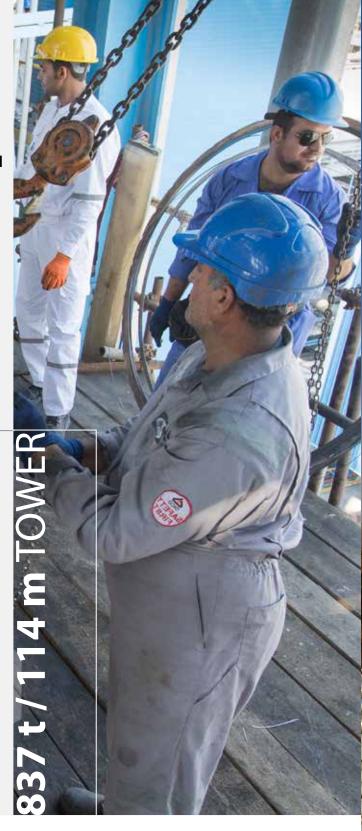
- Basic, detailed engineering contractor and equipment purchase: Toyo (Japan), LG (South Korea), Sazeh (IRAN)
- Process Units License: AXENS (France), COROP UHDE (Germany), and TORY (Japan)
- Manufacturing equipment: The total weight of the equipment of this company is over 100 thousand tons And 20% of this equipment is made by domestic manufactuers.
- **Construction & Installation:** 100% of the work done by Iranian forces in cooperation with Jahan Pars, Kayson, Tehran Jonoob, Mchine Sazi Arak Co., Iran Industrial Buildings Company and ...

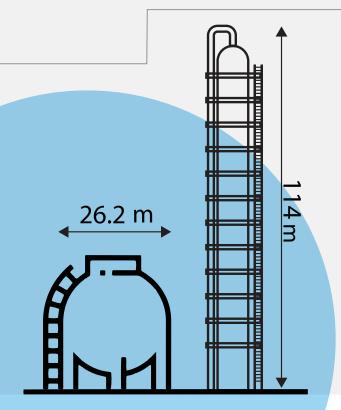




Some of the major executive operations of company construction

- Excavation: 7 million cubic meters
- Concrete placing: 110 thousand cubic meters
- Piping: about 1,150,000 inches in Diameter
- **Insulation:** 180 thousands square meters
- Painting: 940 thousands square meters
- Electrical & Instrumentation cabling: 1650 kilometers
- Installation of one of the largest one-piece industrial towers in the world with the height of 114 meters and the weight of 837 tons(T-4003)
- Construction of the largest spherical tanks in Iran (with a diameter of 2.26 meters and a capacity of 9500 cubic meters)
- Job creation during installation, construction and pre-commissioning, amounting to 48,200,000 people per hour. It should be noted that about 4500 people have worked at the peak period of executive operations.

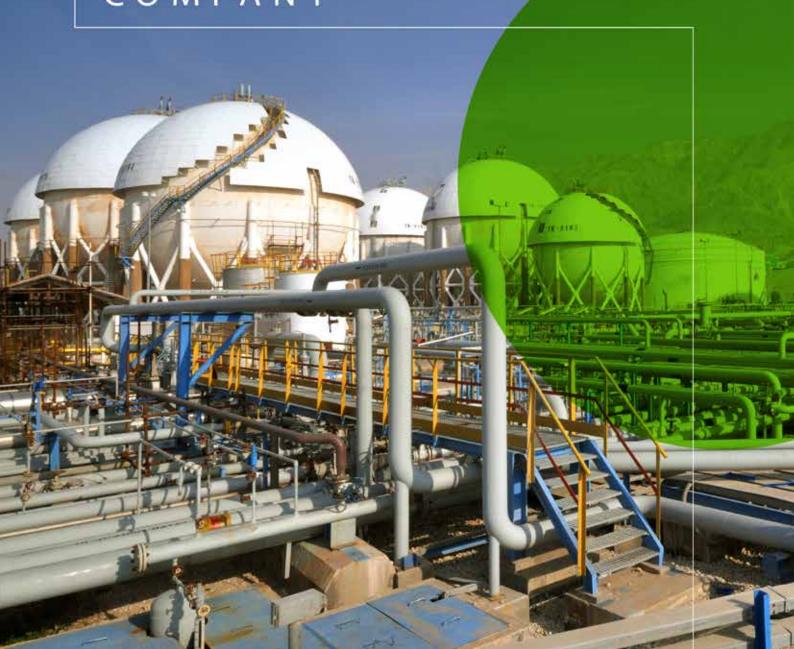






Feedstocks Main Products The Export Destinations

NOURI Petrochemical COMPANY



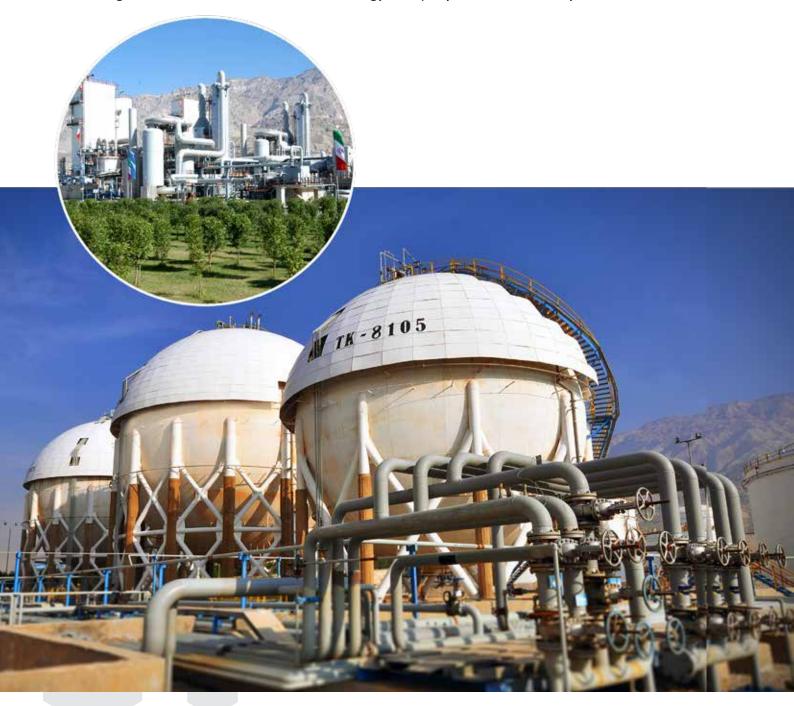


Nouri Petrochemical Company Feedstocks (Raw Materials)

4.77 million tons per year

| Gas condensate | 4.5 million tons | received from refineries of South Pars Gas Complex (SPGC) |
|--------------------|------------------|---|
| Pyrolysis gasoline | 270,000 tons | received from Jam Petrochemical Company (tenth olefin) |

Nouri Petrochemical Company receives its ancillary services such as electricity, steam,water, nitrogen, etc. from Mobin Persian Gulf Energy Company (centralized utility).





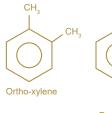


| Main Products of Nouri Petrochemical Company | 1.2 million tons per year |
|--|----------------------------|
| Para-xylene | 750 thousand tons per year |
| Benzene | 330 thousand tons per year |
| Ortho-xylene | 80 thousand tons per year |

Usages of the Main Products of Nouri Petrochemical Company

production of polyesters, synthetic fibers, dyes, resins, disposable bottles, nylon, detergents, pharmaceutical compounds, pesticides, industrial solvents

















| By-products of Nouri Petrochemical Company | 3.3 million tons per year |
|--|---------------------------|
| Heavy End (HYE) | 1,980 thousand tons |
| Heavy Aromatic (H.A) | 16 thousand tons |
| Raffinate (RAF) | 679 thousand tons |
| Light End (LTE) | 380 thousand tons |
| LPG (Liquid Petroleum Gas) | 76 thousand tons |
| C5-cut (Pentanes cut) | 47 thousand tons |
| HTN (Hydro Treated Naphtha) | 120 thousand tons |

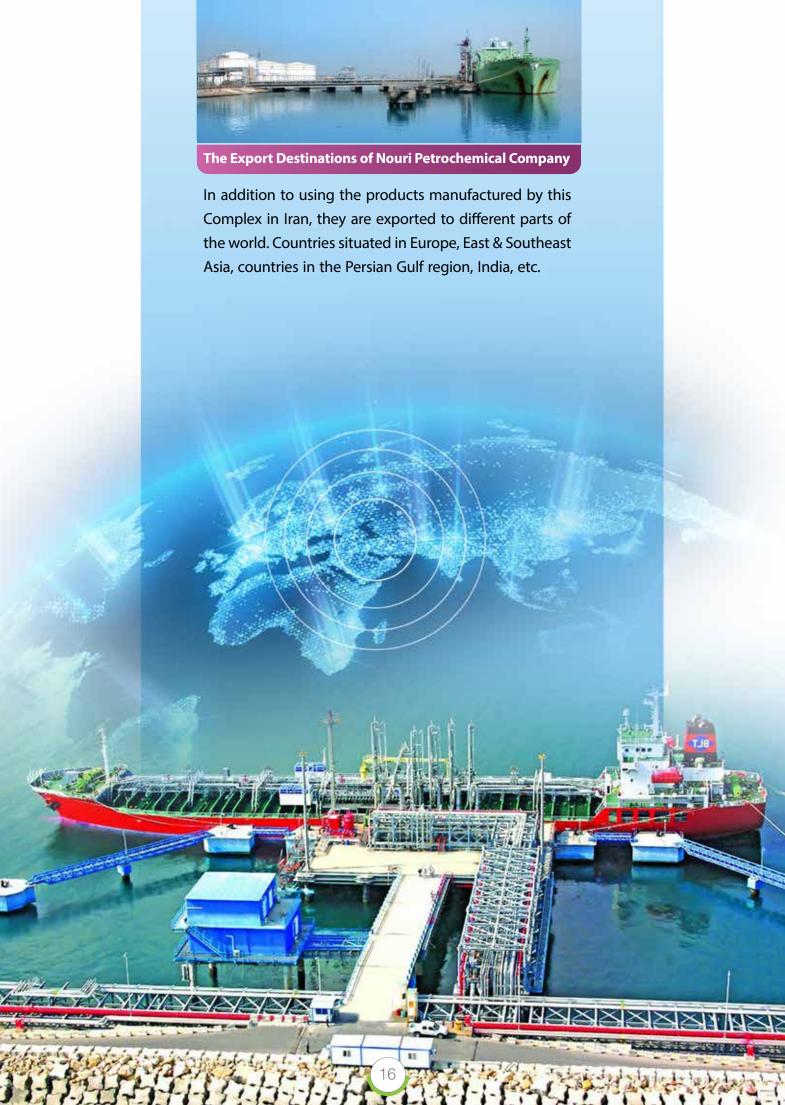
Usage of By - Products manufactured by Nouri Petrochemical Company

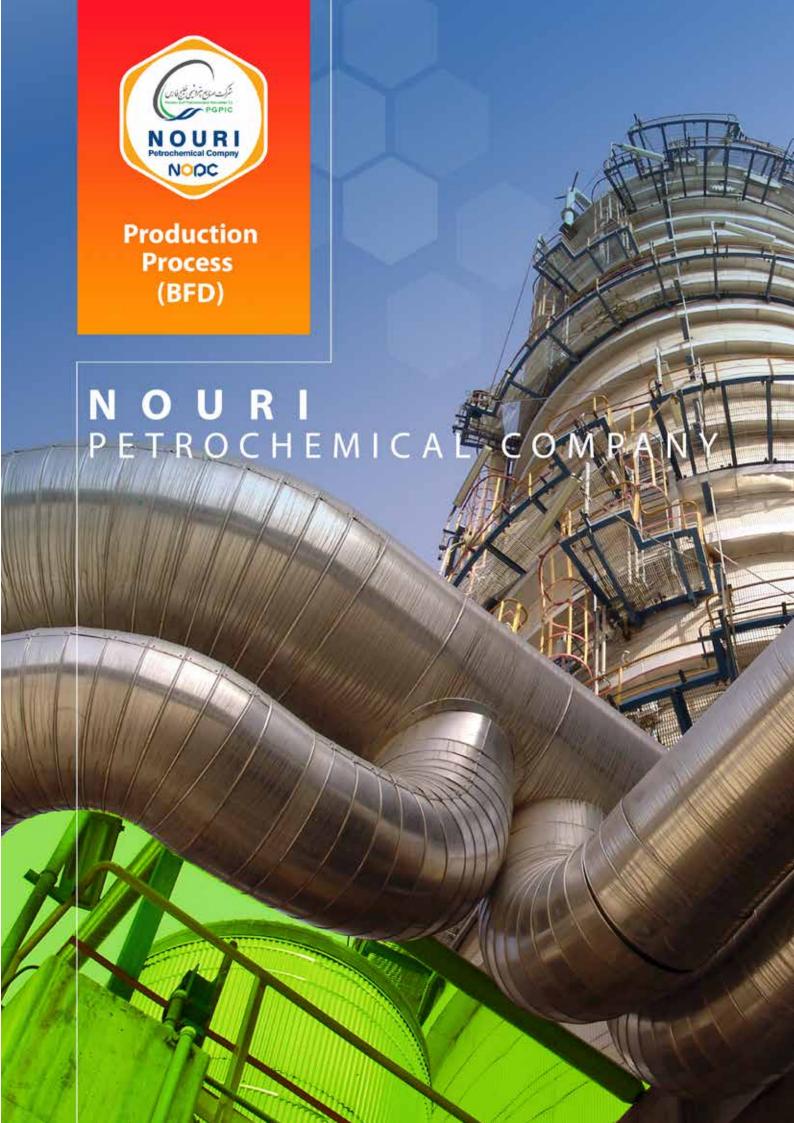
One of the most significant feed in Olefin Unit

Also, could be used in Refinery Industries with the aim of manufacturing petroleu products.

Nouri Petrochemical By-products









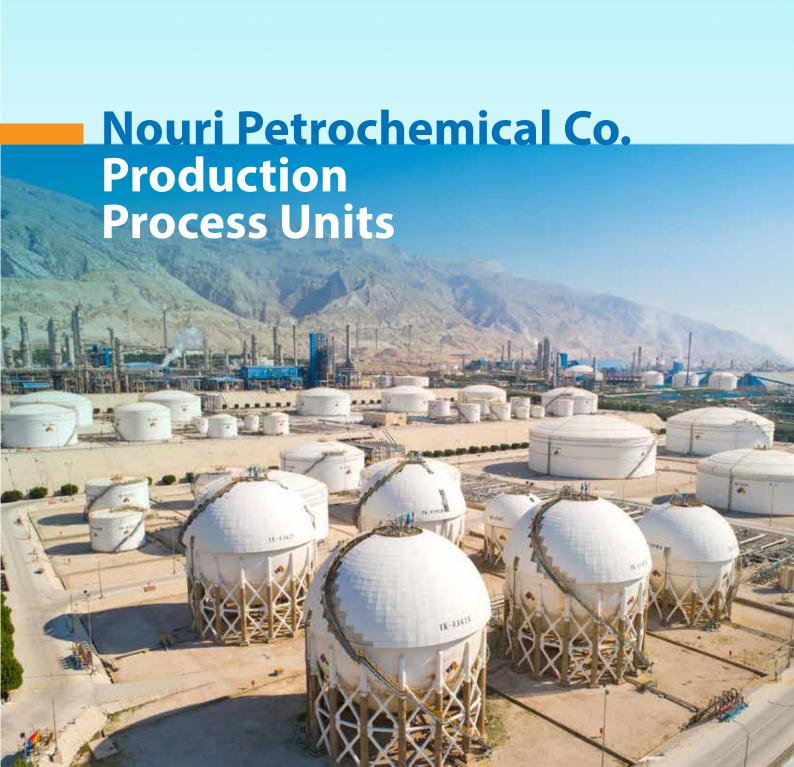
Production Process of Nouri Petrochemical Co.

Nouri Petrochemical Company consists of 13 Process Units and 1 (product) Storage & Transfer Unit. To illustrate, these units are responsible for receiving feed, producing and transferring the products.

All operational control is done by advanced control systems such as DCS (Distributed Control System) & FCS (Fieldbus ControlSystem) and experienced & expert human forces.

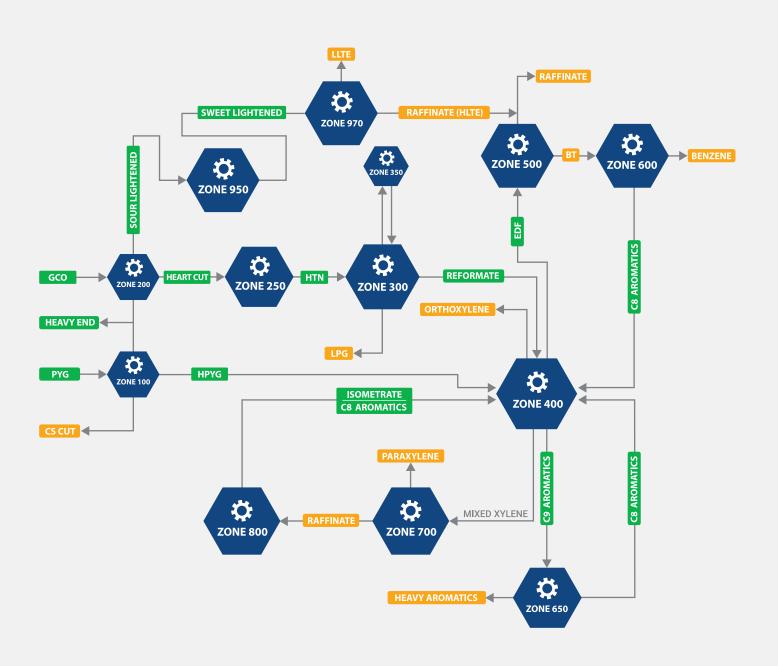


PRODUCTION PROCEDURE





Process Diagram (BFD) of Nouri Petrochemical Co.



Nouri BFD Diagram





Unit 100 (PYROLYSIS GASOLINE HYDROGENATION UNIT):

Removal of impurities (Nitrogenous, Sulfur - containing & olefin compounds)

Unit 200 (GAS CONDENSATE PREFABRICATION UNIT):

Preparation of Gas Condensate (Separation of light & heavy compounds)

Unit 250 (HYDROTREATING UNIT):

Product Hydrotreating Heart Cut receiving from Unit 200 as output

Unit 300 (CATALYTIC REFORMING UNIT):

Catalytic Reforming (reforming Paraffin & Aromatic compounds)

Unit 350 (CATALYTIC REGENERATION UNIT):

Reduction of coke catalyst

Unit 400 (REFORMATE & AROMATICS UNIT):

Separation of Reformate & Aromatics and Ortho - xylene

Unit 500 (BT EXTRACTION UNIT):

Extraction of Benzene & Toluene from Nonaromatic hydrocarbons using Normal Morpholine Solvent

Unit 600 (DISPROPORTIONATION UNIT):

Separation of Benzene from Toluene and Reforming Toluene to Benzene

Unit 650 (TRANSALYATION UNIT):

Reforming 9 – carbon Hydrocarbons (received from Unit 400) to Xylene mixture and coming back to Unit 400 $\,$

Unit 700 (PARA-XYLENE SEPARATION UNIT):

Separation of Para-Xylene from Mixed Xylenes received from Unit 400 using adsorption by molecular sieve.

Unit 800 (ISOMERIZATION UNIT):

Enriching Xylene mixtures (from Unit 700) with Para-Xylene and sending to Unit 400 to further separation.

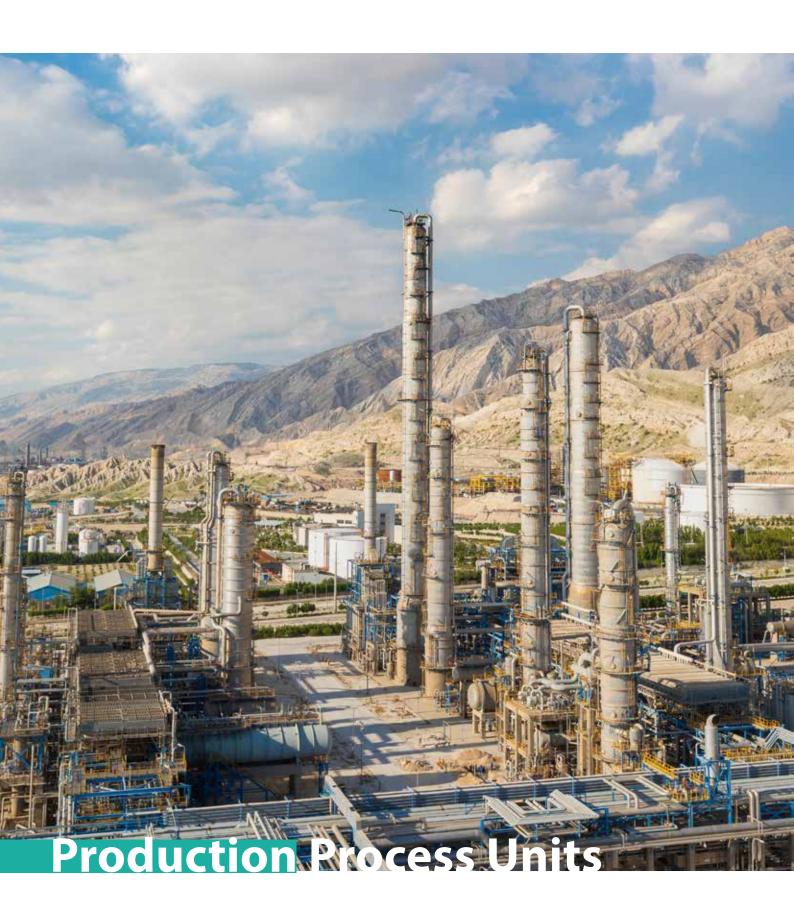
Unit 950 (LTE SWEETING):

Desulfurization of light cut produced in Unit 200 for sending to Jam Petrochemical Company.

Unit 970 (LTE SPLITTING):

Converting LTE to LLTE & HLTE







Unit 100

Removal of impurities

(Nitrogenous, Sulfur - containing & olefin compounds): (PYROLYSIS GASOLINE HYDROGENATION UNIT)

This unit was employed for pyrolysis gasoline hydrogenation received from Olefin Unit at Jam Petrochemical Company. The unit capacity is such that it can hydrogenate 270,000 tons of pyrolysis gasoline.

Unit 200

Preparation of Gas Condensate (Separation of light & heavy compounds):

(GAS CONDENSATE PREFABRICATION UNIT)

The main purpose of this unit is to send suitable feed to unit 300. In this pre-separation unit, which has a capacity of about 4,500,000 tons per year, light components (Light End) are separated in the first separation tower and heavy components (Heavy End) are separated in the second separation tower.



Product Hydrotreating Heart Cut receiving from Unit 200 as output:

(HYDROTREATING UNIT)

Removal of impurities (sulfur, nitrogen, water, halogenated diolefins, olefins, arsenic, mercury and other metals, etc.) from Heart Cut is done in this unit.

These impurities are very harmful to the 300-unit catalyst. For this purpose, after heating, the mixture of feed and hydrogen passes through a reactor filled with BI-Metalic catalyst.



Unit 300

Catalytic Reforming (reforming Paraffin & Aromatic compounds):

(CATALYTIC REFORMING UNIT)

The output of Unit 250 (Hydrotreating) is sent to Unit 300 (Catalytic Reforming) to produce aromatics. The technology of this unit is called Moving Catalyst Bed. After passing through the filter, the inlet feed is mixed with hydrogen and enters the first reactor after heating. The impurity-free feed stream is converted to aromatics by four adiabatic reactors in the presence of hydrogen and low pressure in the presence of a Bl-Metalic catalyst.



CATALYTIC REGENERATION UNIT:

The purpose of designing this unit is continuous catalytic reforming of unit 300 (Catalytic Reforming).

With continuous reforming and regenerating, the activity and selectivity of the catalyst are controlled under optimal conditions.



Separation of Reformate & Aromatics and Ortho-xylene (REFORMATE & AROMATICS UNIT)

The feed of this unit is the output of unit 300 (Cat. Reforming) and hydrogenated pyrolysis gasoline ($C5^+$).

Separation of C7⁻ hydrocarbons from heavier aromatics is performed in the Deheptanizer tower. The upstream of the tower, including benzene and toluene and lighter components (C7⁻), is sent to the reflux drum and after cooling is sent to unit 500 (BT EXTRACTION).





Unit 500

Extraction of Benzene

& Toluene from Nonaromatic hydrocarbons using Normal Morpholine Solvent:

(BT EXTRACTION UNIT)

In this unit, aromatic hydrocarbons, which are mainly paraffinic and their boiling point is close to the aromatic hydrocarbons of their group, are separated from other hydrocarbons, using a solvent and the liquid-liquid extraction method. The proximity of the boiling point of the components makes it impossible to separate them by distillation.

Unit 600

Separation of Benzene

from Toluene and Reforming Toluene to Benzene,

(DISPROPORTIONATION UNIT)

There are two main sources of feed in this unit, one is from BT Extraction phase unit (Unit 500), and another is from para-xylene separation process unit (PX Separation, Unit 700).

Along with the isolated current from the bottom of the Stripper tower, which mostly consists of benzene and toluene, these two phases pass through the Clay tower. Consequently, its compounds and diolefin are converted to compounds with higher boiling points, and in later stages can be separated by distillation.



Reforming 9– carbon Hydrocarbons (received from Unit 400) to Xylene mixture and coming back to Unit 400 (TRANSALYATION UNIT)

The feed of this unit includes C9⁺-cut extracted from the Reformate Aromatics Separation unit. The input feed enters the Heavy Aromatics tower. From the bottom, Heavy Aromatics including cuts C10A and C11 are separated and sent to B.L., and another cut, which includes C9A and C10A, is separated from the top and sent to the TAC9 reactor.





Separation of Para-Xylene from Mixed Xylenes received from Unit 400 using adsorption by molecular sieve:

(PARA-XYLENE SEPARATION UNIT)

In this unit, para-xylene separation is performed through adsorption using molecular sieve method. In this method, first para-xylene is absorbed by molecular sieves due to its molecular properties, and in the next step, para-xylene is removed from the molecular sieves by a desorbent called paradiethylbenzene (PDEB) and sent to the separation section.



Enriching Xylene mixtures (from Unit 700)

with Para-Xylene and sending to Unit 400 to further separation. (ISOMERIZATION UNIT)

Isomerization of C8 aromatics, reaching the equilibrium concentration and production of para-xylene with the highest possible efficiency is the main task of this unit. The feed of this unit is the product of the top of the raffinate tower in the para-xylene separation unit, which is free of para-xylene.



Desulfurization of light cut produced in Unit 200 for sending to Jam Petrochemical Company.

(LTE)

Removal of impurities (mainly sulfur, nitrogen, water halogenated diolefins, olefins, arsenic, mercury and other metals) from the Light End is done in this unit. For this purpose, the mixture of feed and hydrogen, after heating, passes through a reactor filled with BI Metalc catalyst.



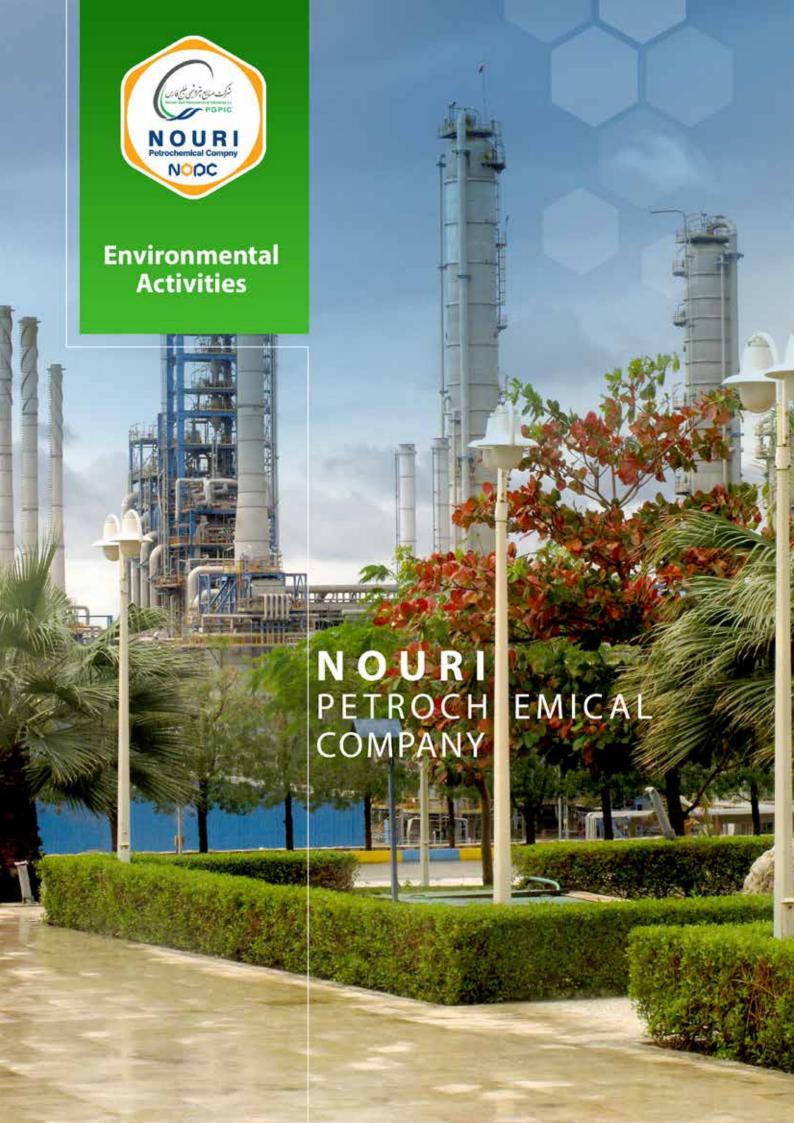




LTE SPLITTING

The aim of this unit is to adjust RVP suitable for the Light End product by dividing the feed into two cuts, light LLTE and heavy HLTE.







Seven Main Areas of Environmental Activities of Nouri Petrochemical Co.



Environmental Measures taken by Nouri Petrochemical Company

- Receiving Green Industry Certificate of Appreciation in Iran, as an environmentally-friendly industrial unit in 2010.
- Installation and commissioning of the first hydrocarbon vapor recycling system (VRU) in the export wharf of products produced by Nouri Petrochemical Company in 2012
- Establishment of flare instant monitoring system,oxygen percentage of furnaces and flow rate of gaes sent to flare minimization of complex industrial waste disposal by reusing Clay industrial soil waste in Kangan Cement Company (at the rate of 86.5 tons per year)
- Implementation of platinum recycling project from catalytic waste







Participation in Environmental Protection

As the main support of Persian Gulf humpback dolphins plan since 2013

- The important achievements of the above mentioned plan are as follows;
- Registration of Deir-Nakhilo National Marine Park as a Marine Mammal Conservation Area in the World Conservation Union
- The official registration of the Indian Ocean Humpback Dolphin in the World Marine Mammal Book of 2015
- Symbolic registration of Persian Gulf humpback dolphin in the country's document registration organization by Nouri Petrochemical Company in 2018
- Holding continuous cultural programs and workshops for indigenous people, fishermen and students.
- Increasing the protected border of Deir-Nakhilo National Marine Park as a result of analytical expert reports prepared in this project to the Department of Environment Identification of new groups of dolphins in Rostami port in Bushehr province.

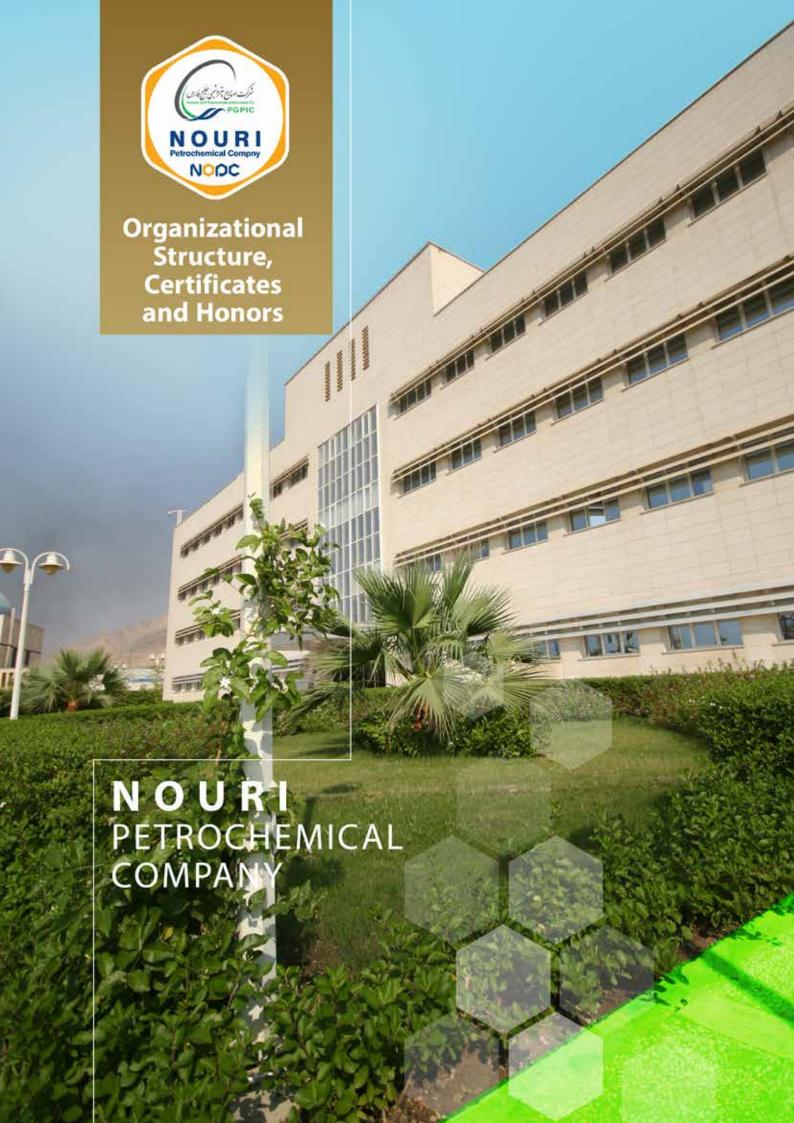














Management Statements

Mission

Production of aromatic products and high-quality by-products from gas condensate and pyrolysis gasoline using an efficient production system, based on the latest technologies in the world in order to meet the values expected by customers, a stable supply chain and the use of effective communication mechanisms with stakeholders through active cooperation and interaction with partners, committed and professional manpower with responsible and sustainable outlook.

Vision in 2023

A leading organization with sustainable production and profitability and minimal waste of resources.





Management Statements

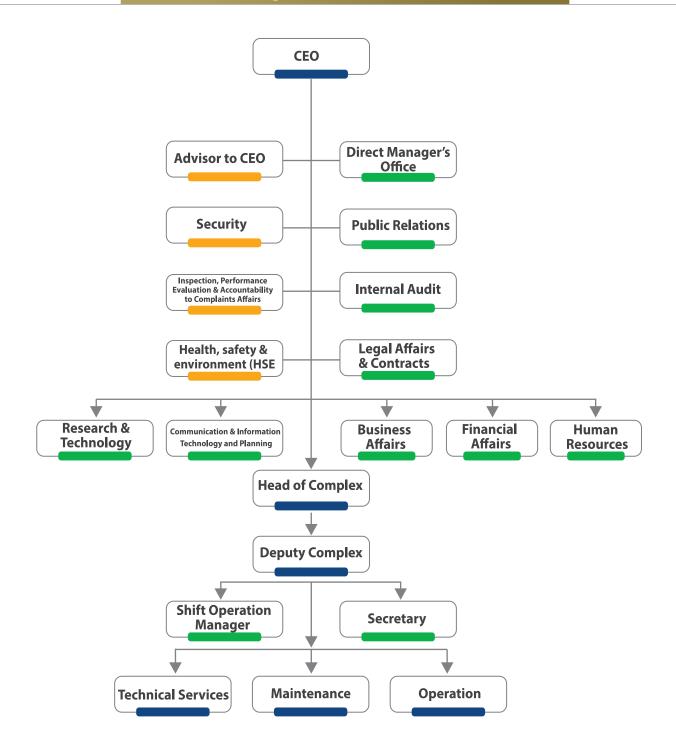
Main (Macro) Strategies

- Empowering & promoting employee satisfaction
- Producing higher value-added products
- Maintaining existing markets and expanding into new markets
- Developing & empowering the supply chain with priority
- Domestic suppliers
- Improving production & backup technologies
- Effective management of safety and environmental impacts
- Cost management, wasted resources and energy consumption





Organization Chart







The Certificates























CERTIFICATES

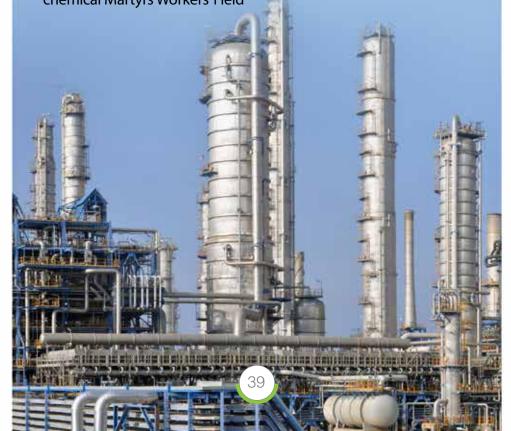
The Honors of Nouri Petrochemical Co. in 2020

- Breaking the production record at Nouri Petrochemical Company with the production of the company's products, 8% higher than the nominal capacity of the complex
- various production records, including production of 106% para-xy lene and production of 111% benzene relative to nominal capacity
- First place in the ranking of production indicators of the Persian Gulf Petrochemical Industries Company, in the first six months of the year
- 26.5 percent increase in production in the first six months of the year compared to the same period last year with an increase in production of 511 thousand tons of products
- Assignment of EPC contract for Heavy-Cut Sweetening Project (an important step towards sustainable profitability and helping to reduce environmental pollution)
- Purchasing Urea and Ammonia Petrochemical Complex in order to develop the product portfolio and increasing the company's profitability
- Another important step for sustainable profitability and helping to reduce environmental pollution by concluding a contract and starting the project of company's burner gas recovery project with the production of ammonium sulfate fertilizer



The Honors of Nouri Petrochemical Co. in 2020

- Implementing technology management system at Nouri Petro chemical Company for the first time in the country's petrochemical companies
- Top Company at Persian Gulf Petrochemical Industries Company in the field of research along with the Research Week (one of the top three companies Persian Gulf Petrochemical Industries Company)
- Receiving the golden statue of Social Responsibility at The fifth conference of social responsibility of the country's oil industry
- Receiving Customer Satisfaction Management System Certificate, ISO 10004 Standard Edition 2018
- Receiving Customer Complaint Management System Certificate
 ISO 10002 Standard Edition 2018
- Receiving ISO IEC17025 External Auditor Approval for laboratory quality management of Nouri Petrochemical Company
- Achieving the edition (ISO10015-2019) Staff Competency Man agement & Development System
- Renewing other modern management systems, ISO 45001, ISO / TS 29001, ISO 2/9001 HSE MS, ISO 50001
- Achieving the top rank by Zulfiqar Basij Resistance Force in the 4th Malek Ashtar Festival, as the most successful category of the Petro chemical Martyrs Workers' Field





Communication Channels

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