



Industrial Complex: Site 3, Special Economic Zone for Petrochemicals - Khuzestan Province, Iran
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FANAVARAN Petrochemical Co.

Methanol, Acetic acid & Carbon monoxide Manufacturer

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Top 100 IMI-100 Ranked Company, 2020

About us

Fanavaran Petrochemical Company is established in 1998 for manufacturing and extracting methanol, acetic acid, and carbon monoxide products.

It is located on the Persian Gulf coast in the Special Petrochemical Economic Zone of Khuzestan province - Iran, under the area of 25 hectares.

This industrial complex is consisted of a one million ton methanol plant, a 150kt/y ton of acetic acid plant, and a 140kt/y carbon monoxide unit to meet the needs of target markets and regional complexes in the area.



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Vision

Fanavaran Petrochemical Company is sustainable in production and profitability, by green and safe products and optimized energy consumption, in 2025.



MISSION

VISION

Mission Statement

As an important methanol and acetic acid manufacturer, Fanavaran Petrochemical Company plays a key role in the development of the industry by maintaining and increasing the production capacity, through relying on young skilled human resources, modern management systems, and high-efficiency advanced technologies to meet beneficiary expectations and achieve maximum profitability, by supplying its products to domestic and leading export target markets.

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FANAVARAN
Petrochemical Co.
Manufacturer of Methanol, Acetic Acid
and Carbon Monoxide



Methanol

Methanol is an essential ingredient used to produce hundreds of everyday industrial and consumer items. It is also a clean-burning, cost-competitive alternative fuel.

Methanol can be produced from natural gas, coal, and renewable sources such as municipal waste, biomass, and recycled carbon dioxide.

On an industrial scale, methanol is predominantly produced from natural gas by reforming the gas with steam and then converting and distilling the resulting synthesized gas mixture to create pure methanol. The result is a clear, liquid, organic chemical that is water-soluble and readily biodegradable.

Over half of the world's methanol is used in various chemical applications. Methanol is used as a feedstock to produce chemicals such as acetic acid and formaldehyde, which in turn are used in products like adhesives, foams, plywood subfloors, solvents, and windshield washer fluid. Close to half of the world's methanol is used in energy-related applications.

In recent years, the use of methanol in the production of olefins or methanol-to-olefins (MTO) has grown rapidly.

Methanol is also a key component in biodiesel, renewable fuel that can be used in place of, or blended with, conventional diesel fuel.

Fanavar Petrochemical Company produces one million tons of AA purity grade methanol each year and supplies the domestic and export target markets while using some as captive produced methanol for its acetic acid production.



Methanol Specifications

Item	Test Method	Unit	Value
Appearance	ASTM-D1722		Clear and free of suspended matter
Purity	ASTM-E346	WT%	Min 99.85
Water	ASTM- 203	WT%	Max 0.1
Ethanol	ASTM- 346	WT%	Max 0.0050
SP.GR@20/20	ASTM- D4052		0.791 - 0.793
Acetone	ASTM- E346	WT%	Max 0.001
Permanganate Time@150C	ASTM-D 1363	minutes	Minimum 60
Distillation Range	ASTM-D 1078		Max 1.0°C to include 64.6°C ± 0.1
Acidity (as acetic acid)	ASTM-D 1613	WT%	Max 0.003
Total Iron	ASTM-D 1068	ppm	Max 0.01
Chloride	ASTM-D512	ppm	Max 0.02
Sulphur	ASTM-D5623	ppm	NIL
Hydrocarbons (Water Miscibility)	ASTM-D1722		Passes test
Carbonisable PT-CO	ASTM-E 346	APHA	Below 30 APHA
Odour	ASTM-D 1296		Characteristic with no residual Odour
Color PT-CO	ASTM-D 1209	APHA	Below 5 APHA
Non Volatile Matter	ASTM-D 1353	mg/1000ml	Max 8mg/1000ml
TMA	GC	ppb	Max 40
Alkalinity as NH3	ASTM-D 1614	WT%	NIL

Major Applications of Methanol

- MTO
- Acetic acid
- MTBE & TAME
- Biodiesel
- Formaldehyde
- Fuel Applications
- Methyl Methacrylate

Acetic Acid

Acetic acid or ethanoic acid is one of the simplest carboxylic acids with a strong, sour, and pungent smell.

It is commonly known in every household as the key ingredient of vinegar. It is, however, also an important feedstock used in the manufacturing process of various other industrial chemicals, ranging from synthetic polymers to esters.

Acetic acid is used during the manufacturing process of several products such as dyestuffs, perfumes, synthetic fibers, textiles, inks, dyes, soft drink bottles, rubbers, plastics, pesticides, wood glues, photographic films, etc.

Moreover, acetic acid is also used as a food additive and solvent for many industrial processes, but its largest end-user is the vinyl acetate monomer (VAM) manufacturing industry which accounts for around a third of the total global consumption.

Other segments with high consumption of acetic acid include; purified terephthalic acid, acetic anhydride, ethyl acetate, and butyl acetate manufacturing industries.

Fanavar Petrochemical Company produces 150kt acetic acid each year consuming captive methanol and carbon monoxide of its products, as main feed.



Major Applications of Acetic Acid

- Vinyl Acetate Monomer
- Terephthalic Acid
- Cellulose Acetate
- Pharmaceutical Industries
- Paints and Resins industries

Acetic Acid Specifications

Item	Test Method	Unit	Value
Appearance	MAP-SM111		Clear and free of suspended matter
Purity	MAP-70014	WT%	Min 99.85
Water	ASTM- D1364	WT%	Max 0.15
Formic ACID	ASTM- D3546	WT%	Max 0.050
Density @ 20 °C	ASTM- D1298	Kg/lit	1.048 - 1.051
Acetaldehyde	ASTM- D2191	WT%	Max 0.050
Permanganate Time@20 °C	MAP-70019	hours	Minimum 2 hours
Crystallization point	ASTM-D 1493	°C	Min16.35°C
Sulphates (as So4)	MAP-70021	ppm	Max 1
Chloride (as CL)	MAP-70020	ppm	Max 1
Total Iron	ASTM-E394	ppm	Max 1
Propionic Acid	M602.515	WT%	Max 0.010
Non volatile matter	ASTM-D1353	WT%	Max 0.0030
Heavy metals (as Pb)	ASTM-D1347	ppm	Max 0.5
Color	ASTM-D1209	APHA	Below 10 APHA

Carbon Monoxide

Carbon monoxide is a colorless, odorless, flammable, toxic gas. High-purity carbon monoxide that is dry and free of sulfur compounds is normally noncorrosive to metals at atmospheric pressure.

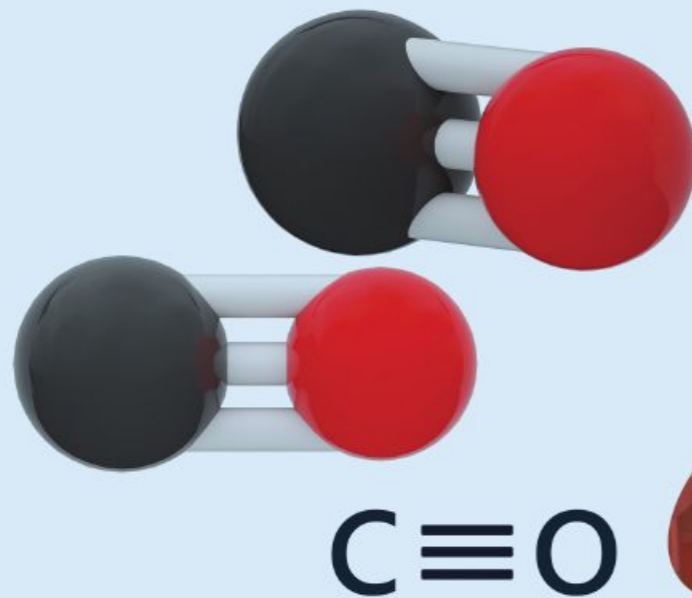
Lower-purity grades containing moisture, sulfur compounds, and other impurities can form toxic metal carbonyls and can cause stress corrosion cracking in carbon steels at elevated pressures. Chemically, carbon monoxide is stable but can act as a strong reducing agent at elevated temperatures.

Fanavaran carbon monoxide unit production capacity is 140 kt/y, and the feed for, which is natural gas, comes from the National Iranian Gas Company at the rate of 87927t/y.

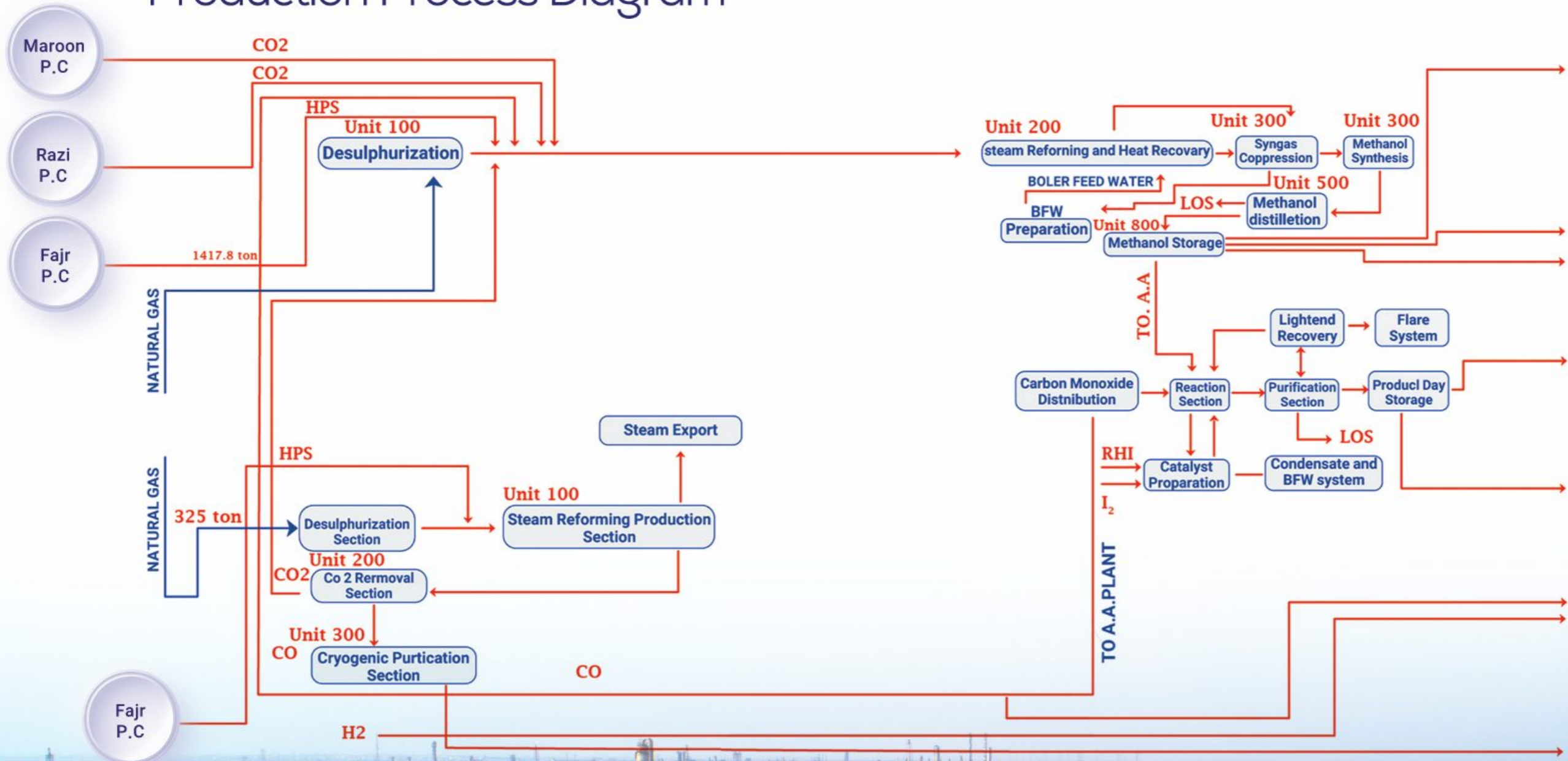
This product is used as a captive feed for acetic acid production and the extra amount goes to other petrochemical complexes located nearby in the area.

Major Applications of Carbon Monoxide

- Phosgene Production
- Engineering Polymers
- Production of Acetic Acid
- Organic Chemicals
- Production Of Isocyanates



FANAVARAN Petrochemical Co. Production Process Diagram



Brief History

Founded
April 4,1998

01

02

..... Methanol Exploitation
June 20,2004

Carbon Monoxide
Exploitation
July 23,2006

03

04

..... Acetic Acide
Exploitation
November 22,2006

Admission to the
Stock Exchange
January 21,2008

05

06

..... Inception of Stock
Trading
September 23,2009

Fanavararan Petrochemical Company Recently Achievements

- New Record of 12% over nominal daily capacity of Methanol production by 3052 tons a day.
- New Record of 104% over nominal daily capacity of Acetic Acid production by 510 tons a day.
- Achieving the first rank of total factor productivity index in the ranking of top Iranian companies (IMI-100) 2019.
- Improving sales rank from 91 to 65 ,among the top five hundred companies in Iran (IMI-100) 2019.
- Has the third highest Sales returns ranking, among the Iranian petrochemical companies (IMI-100) 2019.
- Selected Green Industry Company for the fourth consecutive year and holder of silver and gold statues of Green Industry.
- Owner of two mono-star silver statues and 5 certificates from the National Award for Energy Management in the field of energy saving projects.



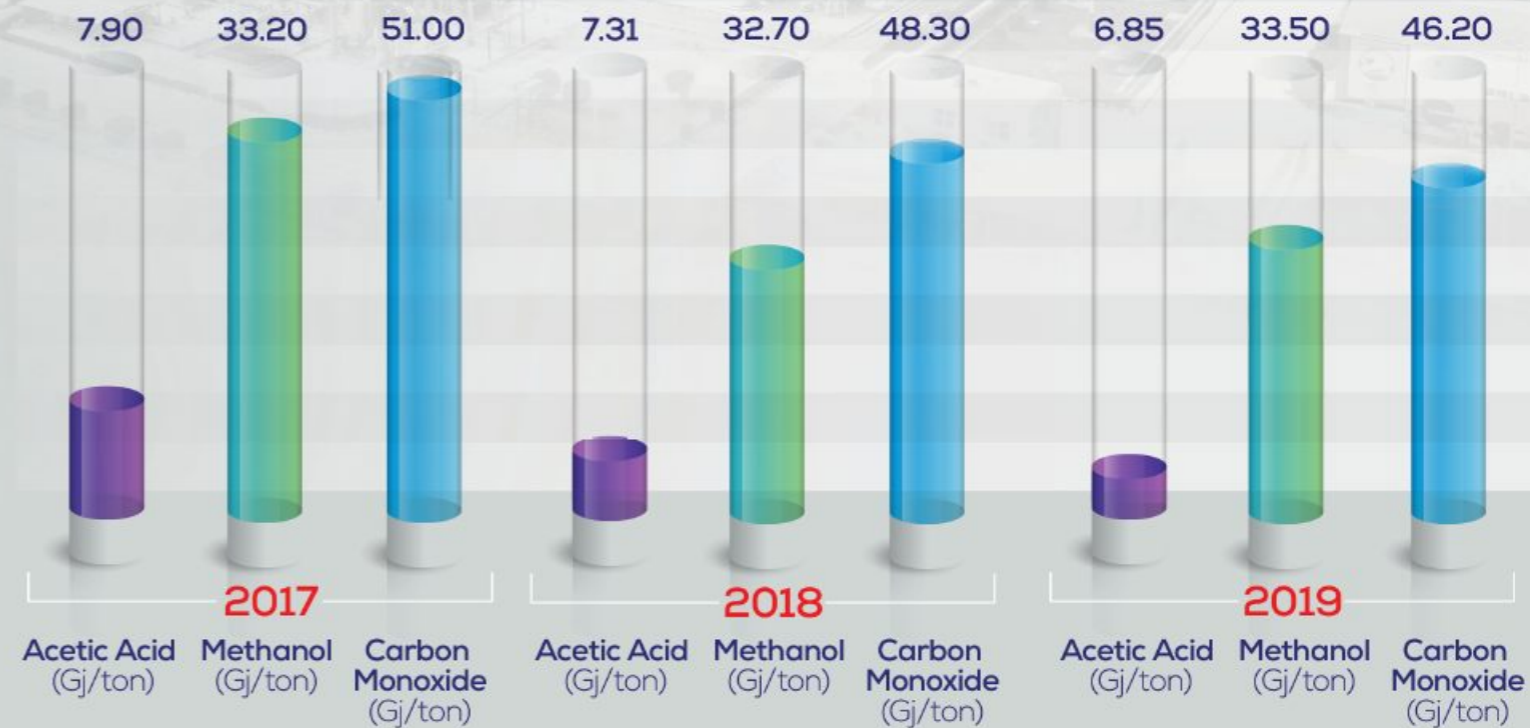


Technical Knowledge Transfer & Development

- 1- Pre-commissioning and commissioning of Marjan Petrochemical Company.
- 2- Pre-commissioning and commissioning of Petro-Kimiya Khavar Miyaneh Company.
- 3- Staff training and pre-commissioning and commissioning of Sabalan Petrochemical Company.
- 4- Removing production barriers in Farabi Petrochemical Company and re-launching the PAF production line.
- 5- Reformer catalyst loading for Lordegan, Kermanshah and Petro-Kimiya Khavar Miyaneh Companies by dense loading.
- 6- Maroon Petrochemical Company converters and equipments chemical wash.
- 7- Manufacturing perlite loading machine for cold boxes by hot nitrogen mechanized method.
- 8- Khuzestan Petrochemical Company's cold box and expander overhaul.

Energy Consumption

	Cost Saved (Million Rials)	Total Savings in 2019 (Million Rials)
Utility Consuming Reduction	23,123	85741
Fuel Consuming Reduction	62,618	



- Acetic acid plant torch effluent recycling.
- Recycling blow down of steam drum in carbon monoxide plant.
- Using processes condensate extra water of methanol plant as compensatory water for cooling towers.
- Fuel consuming reduction by using purge gas sent to torch in the reformer of methanol and carbon monoxide plants.
- Owner of two mono-star silver statues and 5 certificates by National Award Of Energy Management in the field of energy saving projects.



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