



Gas Terminals
of Tomorrow

References

Terminals &
Storages for
NH₃/H₂



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REFERENCES IN PETROCHEMICAL / CHEMICAL PROJECTS

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05903// ETI BAKIR A.S., Turkiye

Anhydrous Ammonia Terminal including 1 x 15,000 MT Storage Tank



CONTRACT DATA

Location:	Samsun, Turkiye
Owner:	Eti Bakir A.S.
Contractor:	Tekfen Imalat ve Mühendislik A.S.
Year of Completion:	2024
Contract Scope:	EPC

TERMINAL & STORAGE TANK DATA

Storage Capacity:	15,000 MT
Terminal Capacity:	15,000 MT
Tank Type:	Steel Steel Full Containment
Design Code:	API 620

TGE SCOPE OF WORK

Engineering, Procurement and Erection of Ammonia Terminal consisting of Storage Tank, Utilities including Cooling Water, Gylcol Water Systems, all Piping and Piping Elements, Instrumentation, Control System, Power Systems including Transformers, MCC, VFD's and all related cabling works within Battery Limit.

PROJECT DESCRIPTION / HIGHLIGHTS

Our Client Eti Bakir is importing anhydrous ammonia at cold conditions (appr. -33°C) to their fertilizer production complex in Samsun city via sea transportation. At this point, they need to store cold ammonia safely and to feed necessary amount of ammonia to the downstream fertilizer plants. Our project will provide to Eti Bakir mentioned capability with the most efficient and safe manner.

05480// ETIR BAKIR, Mazidagy, Turkey
Ammonia Storage Facility including 2 x 5,480 m³ Tanks



CONTRACT DATA

Location:	Mazidagi, Turkey
Owner:	ETIR BAKIR
Contractor:	TGE/ PARESA
Year of Completion:	2018
Contract Scope:	EPC

STORAGE TANK DATA

Storage Capacity:	2 x 5,480 m ³
Tank Type:	Pressurized
Design Code:	ASME VIII Div. 2

TGE SCOPE OF WORK

Basic design for all the ammonia storage facilities, detailed engineering for piping and steel structures	Detailed engineering, procurement services and supply for the equipment, instrumentation and electrical main components
Training	supervision for commissioning and start-up
EPC for spherical tanks	

PROJECT DESCRIPTION / HIGHLIGHTS

Ammonia storage facilities including two spherical tanks having 3,000 tons capacity, compression system (with all peripherals) for the operation of the spheres, ammonia and syngas flares, send-out pumps and start-up pump.

05216// Gübre Fabrikalari T.A.S., Izmit Region, Turkey
Ammonia Terminal including 1 x 25,000 MT Ammonia Tank



CONTRACT DATA

Location:	Yarimca Plant, Izmit Region, Turkey
Owner:	Gübre Fabrikalari T.A.S. Istanbul, Turkey
Contractor:	UMDE Müh. Müt. Tic. Ltd. Sti, Istanbul, Turkey
Year of Completion:	2014
Contract Scope:	EP+CS

STORAGE TANK DATA

Storage Capacity:	25,000 MT
Tank Type:	Full Containment (Steel / Steel)
Design Code:	API 620

TGE SCOPE OF WORK

Basic Engineering Process Area and Tank Detail Engineering and Procurement for: Ammonia Pumps for Send Out Service, DCS-System, Instrumentation and Safety and Control Valves	Design Review of Detail Engineering Supervision of Pre-Commissioning, Commissioning and Performance Tests
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PROJECT DESCRIPTION / HIGHLIGHTS

Ammonia Ship Loading / Unloading System
Ammonia heating and send-out to NPK plant
Ammonia Boil Off Gas Handling System
Flare

05222// Toros, Tarim Sanayi, Samsun, Turkey
Ammonia Terminal with 1 x 15,000 MT Tank



CONTRACT DATA

Location:	Samsun, Turkey
Owner:	Toros Tarim Sanayi Ve Tricaret A. S.
Contractor:	Tekfen Engineering Co., Inc. Istanbul, Turkey
Year of Completion:	2013
Contract Scope:	EP+CS

STORAGE TANK DATA

Storage Capacity:	15,000 MT
Tank Type:	Full Containment (Steel/ Steel)
Design Code:	API 620

TGE SCOPE OF WORK

Basic Engineering Process Area	Design Review of Detail Engineering
Procurement of Unloading Arm, Ammonia Pumps for Send Out Service, DCS-System, Instrumentation, Safety and Control Valves, BOG Compressor Package	Supervision of Pre-Commissioning, Commissioning and Performance Tests

PROJECT DESCRIPTION / HIGHLIGHTS

Ship Unloading Service
Ammonia Send Out Service
Boil-Off Gas Handling System

1168// PEC-RHIN S.A / FRANCE

Debottlenecking / Send-Out Increase of 12,800t Ammonia Terminal from 170kt/a to 320kt/a



CONTRACT DATA

Location:	Ottmarsheim / France
Owner:	PEC Rhin
Contractor:	TGE Gas Engineering GmbH
Year of Completion:	1999
Contract Scope:	EPC Process Area / Debottlenecking Send-Out increase

TGE SCOPE OF WORK

Feasibility Study	Procurement of compressors, pumps heat exchangers, piping, valves, electrical and control equipment
Basic Engineering	Construction
Detail Engineering	Commissioning Supervision

PROJECT DESCRIPTION / HIGHLIGHTS

PEC-RHIN S.A. in Ottmarsheim / France operates an ammonia import / export terminal.

The existing plant consisted of one 10,000 t (design) cold storage tank and two spheres with a capacity of 1,400 t (design) each sphere. The ammonia was delivered by ships or tank wagon with an unloading capacity of 35 t/h (summer conditions).

As the main supplier of ammonia for Rhodia, PEC- Rhin asked TGE to extend the turn over capacity of ammonia from 170.000 t to 320.000 t per year.

TGE had executed a preceding feasibility study, which had analyzed the existing terminal and recommended measures for debottlenecking the plant with respect to investment costs, reliable and safe operation. TGE was asked to provide the EPC solution to debottleneck the Ammonia plant for higher loading/send-out capacity.

0883// Formosa Petrochemical Corporation, Mailiao, Taiwan
Ammonia Terminal including 2 x 30,000 m³ Tanks



CONTRACT DATA

Location:	Mailiao TAIWAN
Owner:	Formosa Petrochemical Corporation
Contractor:	TGE
Year of Completion:	1998
Contract Scope:	EPC

STORAGE TANK DATA

Storage Capacity:	2 x 30,000 m ³
Tank Type:	Double Containment
Design Code:	API 620

TGE SCOPE OF WORK

Complete Basic and Detail Design	Pre-commissioning and Commissioning
EPC turn-key erection	Operator Training
Soil improvement design and supervision	Warranty Execution
Performance tests	

PROJECT DESCRIPTION / HIGHLIGHTS

Terminal Project together with TGE Job 872A completed in 1998
 Jetty Ship unloading/loading system
 Ammonia in-tank pumps (prototype development by Ebara/TGE)
 Ammonia blow down and flare system
 Ammonia BOG handling system