



**Marine**LINE®

## The Future of Shipping Has Arrived as Four New Tankers Join the Terntank Fleet



In March 2017 Terntank Rederi A/S will receive another new tanker vessel, the 15,000dwt ***M/T Tern Ocean***, from AVIC Dingheng Shipbuilding Co., Ltd. in Jiangdu, China. This ship, the fourth newbuilding in a series of state of the art, eco-friendly chemical/product tankers built under BV class from AVIC joins its sisterships ***M/T Tern Sea***, ***M/T Ternfjord***, and the ***M/T Ternsund*** in the growing Terntank fleet.

These new energy efficient LNG-powered vessels operate in compliance with IMO Tier III regulations, trading in the Baltic Sea region, a designated Emissions Control Area (ECA). They are the world's first LNG-fuelled newbuilding chemical/product tankers.

"We are proud of our company history as an innovator in the maritime trade," says Mr. Tryggve Möller, Managing Director of Terntank Ship Management. "These new ships continue that tradition by employing many different and advanced technologies, with a number of 'firsts' in the industry."



**TERNTANK**

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[www.adv-polymer.com](http://www.adv-polymer.com)

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TECHNICAL REPORT



*Mr. Tryggve Möller,  
Managing Director  
of Terntank Ship  
Management.*

The Terntank ships were developed through an EU co-funded project called “Into the Future – Baltic SO2lution” as a co-operation between Terntank and several partners under the Zero Vision Tool (ZVT) platform that envisions

the higher building cost for vessels are offset with reductions in port costs and fairway dues because of environmental advancements.

Each of the ships is powered by a newly developed 2-stroke, low pressure dual-fuel main engine from Wärtsilä that drives a large propeller to deliver service speeds of up to 14.5 knots. With the engine operating in gas mode, the ships are Tier III compliant.

Mr. Möller explains, “The new ships yield considerable fuel cost savings. Conventional product tankers of this size consume on average bunker fuel of 22 to 25 tons per day, however, our newbuildings use just 14 tons per day, making them the modern and fuel efficient tankers in the industry.”

### **MAKING HISTORY IN ROTTERDAM**

In August 2016, Terntank’s first new ship in the series, the *M/T Ternsund*, off-loaded naphtha and gas oil cargoes in the Port of Rotterdam, and was cooled and bunkered there with LNG, the first time a sea-going vessel took on the clean-burning fuel. The LNG tank cooling and bunkering culminated in a major event for Terntank, with media, customers, suppliers, industry and government officials, the ship’s crew, and representatives from the Chinese shipyard all attending the Port function.

The LNG tank cooling process took about 18 hours taking down the ambient temperature of the tanks at +20°C to an operational temperature of -162°C for the bunkering which was done by Shell LNG. It was the first time that a cryogenic fuel had been ship-to-ship bunkered, another first.

The Port of Rotterdam Authority said Terntank was also the first operator to take advantage of a 10% discount on seaport fees available to LNG-fueled



*Tryggve Möller (left) with Jan Slooter, APC’s MarineLine Business Development Director, Europe, at the Port of Rotterdam event introducing the new *M/T Ternsund*.*

ships called the “LNG bunkering incentive.” The Port Authority is using this development to position Rotterdam as a major European LNG hub for the future and to promote the transition from fuel oil to cleaner LNG as a shipping fuel.

### **TERNTANK’S STRONG RELATIONSHIP WITH MARINELINE®**

Terntank first employed the MarineLine® cargo tank coating system from Advanced Polymer





*Actual photos of the MarineLine® cargo tank coating on the M/T Ternsund.*

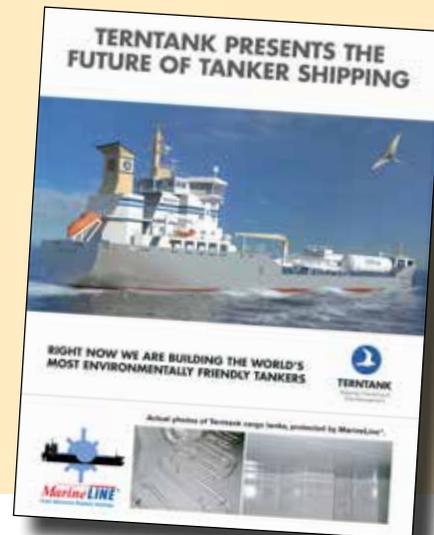
Coatings on its 11,259dwt chemical tanker, **M/T Ternvind** in 2008.

Mr. Möller explains, “MarineLine® has proven to be the best tank surface coating for cleaning and easily switching cargoes. So we changed from epoxy and phenolic epoxy tank coatings and started specifying MarineLine® for all our vessels since that time, including the four new sisterships. We consider MarineLine® the best cargo tank coating technology on the market today.”

MarineLine® fits in perfectly with the eco-friendly nature of Terntank tankers. Typically tank cleaning takes an extensive amount of time and effort but due to MarineLine®’s non-absorption, low surface energy and smooth surface features, tanks are quickly and easily cleaned, with some cargoes only requiring venting. This consumes much less bunkering fuel for cleaning, thus lowering emissions, while using fewer cleaning chemicals to reduce cargo slops, both further positives for the environment beyond the LNG benefits of the ships.

## SHIP TECHNICAL DETAILS

There are many innovations on Terntank’s four new vessels based on an advanced twin-hull design from Rolls-Royce. The technology and specifications behind these 147-meter length (482-foot) tankers are highlighted in this brochure from the APC website at: [http://www.adv-polymer.com/Downloadable\\_Files\\_From\\_APC/technical-reports/Terntank-MarineLine-Brochure.pdf](http://www.adv-polymer.com/Downloadable_Files_From_APC/technical-reports/Terntank-MarineLine-Brochure.pdf)



## A FLEET THAT CONTINUES TO GROW

Back in 1958 Terntank started as a one-ship company. Today, the company operates a fleet of modern chemical/product tankers in the range from 8,000 to 15,000 dwt. With the newest ship, the *M/T Tern Ocean* joining the fleet soon, the fleet list continues to expand:

Name	Built	DWT	CBM	Cargo Tank Coating
<i>M/T TERN OCEAN</i>	2017	15,000	16,559	MarineLine®
<i>M/T TERN SEA</i>	2016	15,000	16,559	MarineLine®
<i>M/T TERNFJORD</i>	2016	15,000	16,559	MarineLine®
<i>M/T TERNSUND</i>	2016	15,000	16,559	MarineLine®
<i>M/T TERNVIND</i>	2008	11,259	12,187	MarineLine®
<i>M/T TARNBRIS</i>	2007	11,288	12,208	Phenolic Novolac Epoxy
<i>M/T TERNHOLM</i>	2005	14,825	15,808	Epoxy
<i>M/T TERNVAG</i>	2003	14,796	15,808	Epoxy
<i>M/T TERNHAV</i>	2002	14,796	15,793	Epoxy
<i>M/T TERNVIK</i>	2001	14,796	15,808	Epoxy
<i>M/T TARNDAL</i>	1998	8,269	9,007	Phenolic Epoxy
<i>M/T TARNFORS</i>	1998	8,245	8,988	Phenolic Epoxy

## INDUSTRY RECOGNITION

Marine industry trade magazine, *Maritime Reporter & Engineering News*, recognized Terntank's *M/T Ternsund* as one of the 'Great Ships of 2016' in its December annual edition. The editors even featured the ship on the cover of magazine talking about many "world firsts."



## ECO-FRIENDLY CHARTERING

Environmentally conscious chartering policies for tankers continue to shape the market as charterers stipulate certain environmental requirements before



chartering a vessel. This is a conscientious effort by charterers to reduce the emission levels in the Baltic Sea.

Because the new Terntank ships have advanced technology and use LNG as fuel, there are significant

environmental advantages compared to conventional tankers using low-sulfur marine gas oil. LNG usage reduces emissions of SO<sub>x</sub> by 99%, NO<sub>x</sub> emissions by 97%, CO<sub>2</sub> by 40%, and particulate matter by 99% per cent. “When charterers see these positive numbers, they want to enter into long-term timecharters with Terntank,” says Mr. Möller. “Our analysis shows that LNG-fuelled tankers are right for the industry in the long term by minimizing the environmental impact.”

Mr. Möller adds that Terntank has always been an industry pioneer. “We were the first company to build a double hull tanker for Scandinavian trades, in 1974. We like pioneering environmental solutions because this is our trade and the Baltic is our backyard. These four new vessels with MarineLine® coated cargo tanks continues that spirit of innovation.”

