



Dutch Tank Storage
Association

Fueling the Dutch Economy & Beyond

VOTOB, Connecting the World of Tank Storage



Fueling the Dutch Economy & Beyond

Liquid bulk storage is the lifeline of the Dutch economy. In fact, the Port of Rotterdam is the largest in Europe, making the country's tank storage sector a crucial link in the petro-chemical production chain, both nationally and internationally. Amsterdam on the other hand is the world's largest petrol port and Zeeland Seaports is the third largest port in The Netherlands.

In this global industry, liquid products are transported to the hinterland by rapid and modern means of transportation: sea shipping (Very Large Crude Carriers VLCC), inland barges, rail and road connections, as well as pipeline networks with tank storage companies providing the physical, fixed attributes of these networks. Additionally, these companies often engage in various other services on top of liquid bulk storage. For instance, they may partake in the heating and blending of products for customers.

At VOTOB (The Dutch Association of Tank Storage Companies) we strive to create a level playing field for storage companies on a regional, national and international level. We provide a wide range of tailored services to members such as monitoring, analyzing and distributing of up-to-date relevant industry information; voicing the opinions of members vis-à-vis regulatory issues; and providing a platform for members to facilitate information and knowledge exchange. We work with companies on non-competitive issues exclusively, for instance: safety, security, sustainability, training and education, innovation, logistics and customs. The association also provides members with useful model documents and guidelines to help facilitate business.

At present, VOTOB acts on behalf of 17 member companies who store crude oil, gasoil, gasoline, chemicals and edible oils and

fats, totaling 22 million cubic meters. These companies in turn employ locals living in the Netherlands – many of whom work directly or indirectly in the transport sector, in surveying or pilotage.

VOTOB is also an active member of the Federation of European Tank Storage Associations (FETSA), an organization representing European national tank storage associations and independent private storage companies operating in bulk liquid storage.



**VOTOB members store
more than 22 million m³**

It's not about ranking, but learning

Safety: Prevention is Better than Cure

Safety is the number one prerequisite for the success of the tank storage industry. Previous incidents within the industry have taught both regulators and storage companies worldwide to thoroughly re-examine safety procedures. As a result, prevention of such incidents is the highest priority.

Therefore, in order to best support our members on the safety front, VOTOB has developed a unique *Safety Maturity Tool*. The purpose of this tool is to audit the overall safety performance of a company and to shed light on key safety insights. The tool focuses on explicit learnings where improvements can be made to help companies achieve a more 'mature' level of safety conduct.

The *Safety Maturity Tool* looks both at the documentation and at the day-to-day practice. The audit consists of three crucial components:

mindware (safety culture), software (management systems) and hardware (assets).

To ensure unbiased results, an external auditor leads the three day auditing process. What is more is that the *Safety Maturity Tool* is a modular system to which new safety modules can be added when required.

The *Safety Maturity Tool* is more than just a safety audit. It fosters a way of thinking that values a learning attitude over merely ticking a box. It helps people internalize various safety matters and put them more accurately into practice.

According to VOTOB, the mission of safety is one in which we live by to raise overall safety standards in the industry. In this way, we provide a platform for member companies to come together and learn from each other, on the safety front and beyond.

SAFETY MATURITY TOOL



“Achieving
a more ‘mature’
level of safety
conduct”

The Safety Maturity Tool in Practice

The philosophy behind the mindware of the *Safety Maturity Tool* closely corresponds with the widely known ‘Hearts and Minds’ philosophy. Keeping this philosophy in mind, different stages of maturity were developed by Professor Patrick Hudson. These stages demonstrate the maturity level of the organization when it comes to safety.

As such, VOTOB members are rated on a scale of 1 to 5 for several safety subjects pertaining to hardware, software and mindware, with 1 being the lowest possible score and 5 indicating a highly reflective organization.

VOTOB members started performing the *Safety Maturity Tool* in 2013. Results show that particularly in the realm of hardware, progression has been made. Yearly all companies make specific improvement plans on the basis of the audit results.

VOTOB draws general conclusions from the audits and helps with issues that concern all members. For instance VOTOB developed a regulatory compliance tool that enables companies to remain up to date with all current regulations and to be compliant. Currently VOTOB has taken up the issue of contractor management.



“Among VOTOB members there is no competition on safety”

The Road to Reflection

	Hardware	Software	Mindware	
	1 Pathological	Ageing is irreversible, assets are ready for demolition	Essential management processes are missing	Who cares, as long as we're not caught
	2 Reactive	Safety of installations is occasionally at risk (outdated, state is unknown)	Essential elements in management processes are missing, outdated or not compliant	Safety is important: we react on incidents
	3 Calculating	Local ageing of assets, preventive inspection and maintenance programs are implemented	Management processes are complete and quite well integrated	We have systems in place to control all hazards
	4 Proactive	Incidental ageing of assets, safety measures comply with industry best practices	Management processes are complete and comply with industry best practices	Leadership and values drive continuous safety improvements
	5 Reflective	Incidental ageing of assets, safety measures go beyond industry best practices	Management processes are continuously improved	Safety is our way of doing business



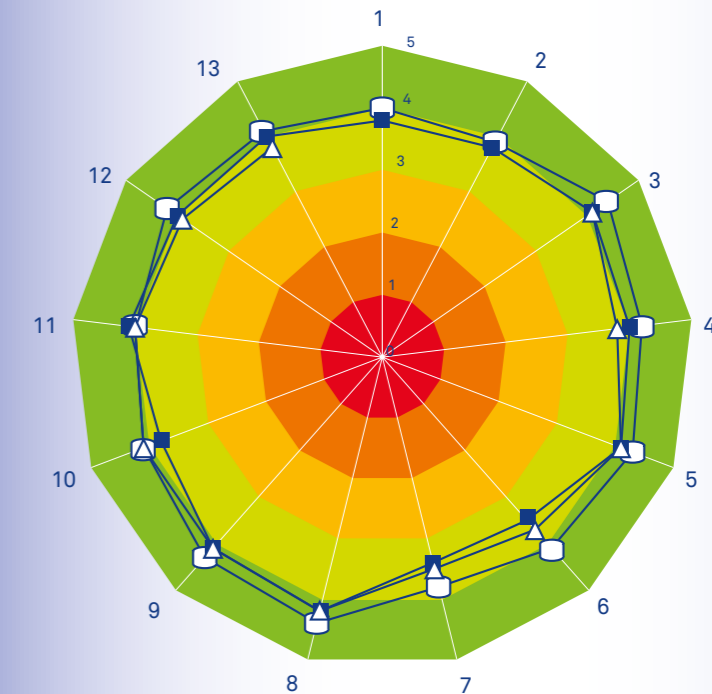
The Safety Maturity Tool
looks both at the
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Hardware Results

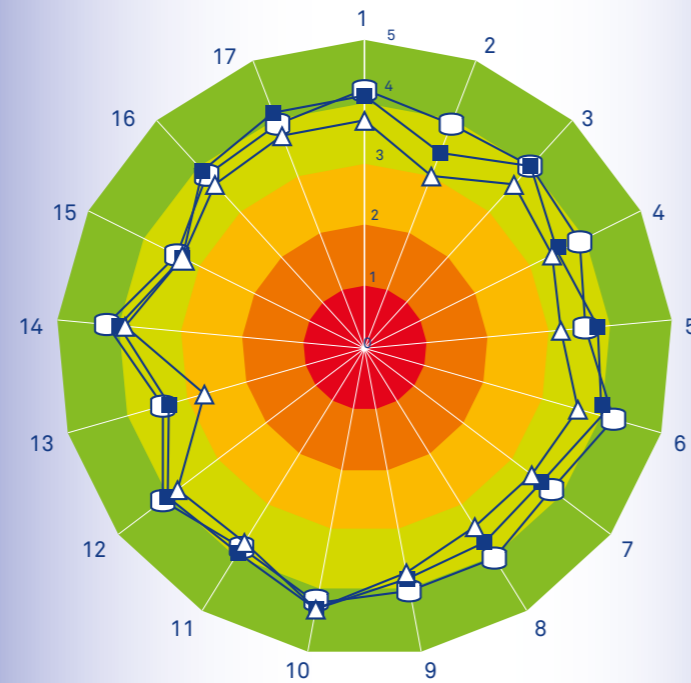
- 1 Jetty
- 2 Pumps
- 3 Tank integrity
- 4 Pressure / Vacuum Relief Valves, ERV's, ERF roof drains
- 5 Independent overfill protection storage tanks
- 6 Tank pipelines
- 7 Heating coils in storage tanks
- 8 Fire extinguishing water supply
- 9 Extinguishing and cooling facilities of tanks
- 10 Fire detection of tanks
- 11 Vapour return system: Supply lines
- 12 Vapour Recovery Unit (VRU)
- 13 Vapour Return System: Burner installation

□ 2015 ■ 2014 ▲ 2013



Software Results

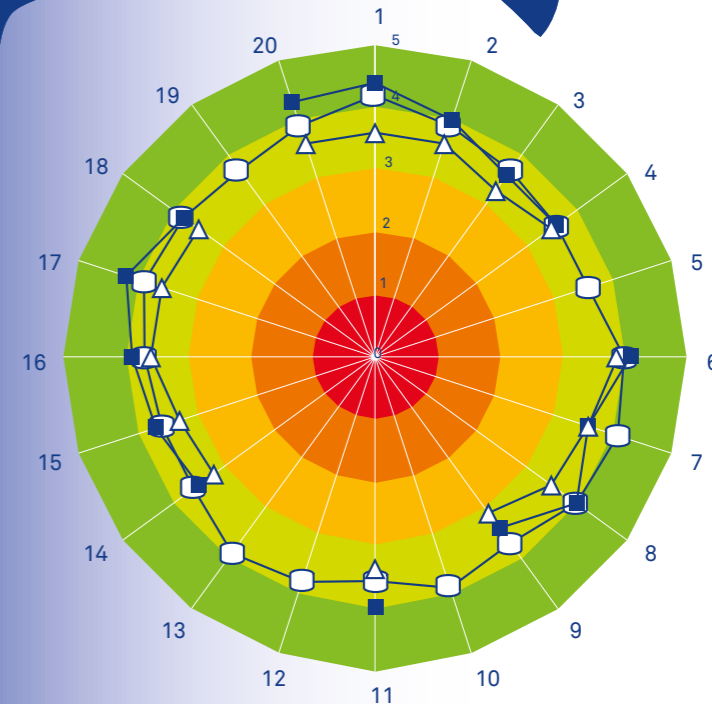
- 1 Safety policy
- 2 Safety requirements
- 3 Safety targets
- 4 Tasks and responsibilities
- 5 Safety training
- 6 Communication, participation
- 7 Risk assessments
- 8 Integrity of installations
- 9 Management of Change
- 10 Emergency planning
- 11 Management system
- 12 Operational control
- 13 Contractor management
- 14 Incident reporting and analyses
- 15 Safety audits
- 16 Monitoring
- 17 Management review



○ 2015 ■ 2014 △ 2013

Mindware Results

- 1 Role management regarding safety
- 2 Role shift supervisor regarding safety
- 3 Role employee regarding safety
- 4 Communication about safety
- 5 Rewarding and punishing safety conduct
- 6 View of management on the causes of incidents
- 7 Balance between safety and profit
- 8 Dealing with risks
- 9 Training and education
- 10 Status of the safety department
- 11 Working safely with contractors
- 12 Work planning and work permit
- 13 Working safely and supervision
- 14 Management of Change
- 15 Maintenance management
- 16 Goal of procedures
- 17 Reporting from incidents
- 18 Learning from incidents
- 19 Safety meetings
- 20 Safety audits



○ 2015 ■ 2014 △ 2013



**At VOTOB we strive to create
a level playing field
for the liquid bulk sector**

VOTOB Statistics

17 member
companies



Capacity
> 22.000.000 m³

2400 full-time
employees
(FTE)



14.000 full-time
employees (FTE indirect)



1 billion
turnover

0.5 billion
investments

2.0 billion
investments
last 5 years

1 billion
investments
next 5 years

**> 50% port
revenues**
from tank
storage



12.000 per year



30.000 per year



24.000 per year



42 million m³ per year



125.000 per year



Making better use of the creative potential of employees

Fostering Innovation in the Sector

In order to remain competitive, tank storage companies must continually raise the bar when it comes to safety and sustainability, while sourcing the customer as good as possible. This is why innovation is a crucial theme for VOTOB. Thus, the association closely follows technological developments that benefit the tank storage sector.

For instance, innovation in the design and construction of jetties is of great interest to VOTOB members. So too is the introduction of welding robots and cleaning robots which make difficult and dangerous work inside tanks easier and safer for all involved.

Another element of innovation addressed by VOTOB is concerned with the business side of the organization. Social innovation improves production processes by making better use of the creative potential of employees. In light of this, human capital is hence the most important asset of a company and innovation in this realm should be taken seriously.



“There is a clear correlation between embracing innovation and generating growing revenues”

Energy efficiency: lower energy costs and less of an impact on the environment

Environmentally friendly and future proof

In the Netherlands, tank storage companies mostly operate in densely populated areas. This means our members have an environmental permit with very strict conditions. In the last few years companies have significantly invested in reducing emissions of volatile organic compounds, also known as VOCs. To calculate VOC emissions VOTOB offers members a uniform calculation model called CARUSO.

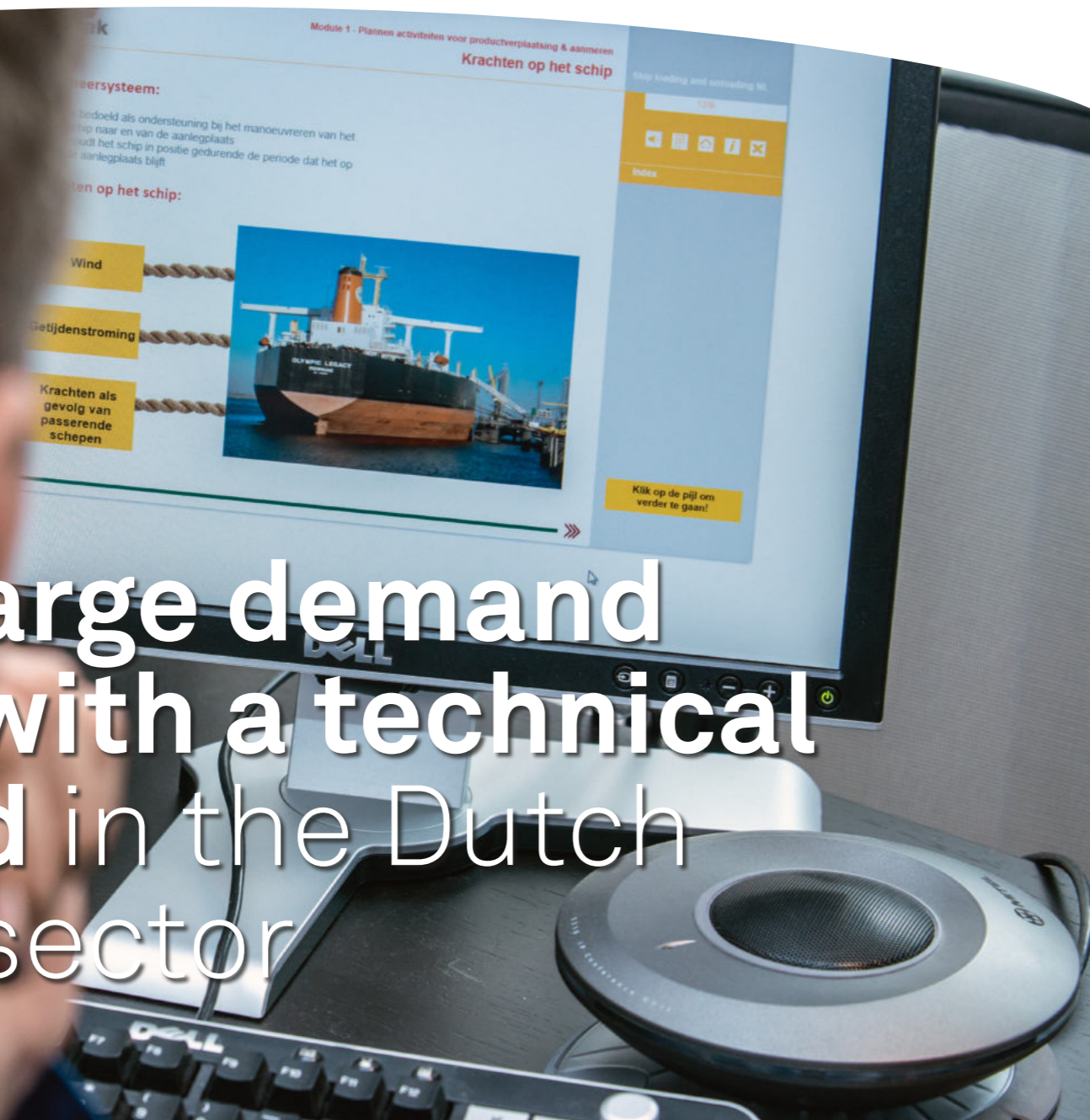
In order to increase energy efficiency in the tank storage sector, most VOTOB members also partake in a multiannual agreement with the Dutch government. This agreement raises the energy efficiency bar year-on-year with benefits being twofold: lower energy costs and a CO₂ reduction.

VOTOB helps members live up to environmental legislation. A sustainable tank storage industry also means that the industry is fit for the future and ready to take on competition. Consequently, VOTOB needs to reconcile two different meanings of the term sustainability: being both environmentally friendly and future proof.



“To calculate emissions VOTOB offers a uniform calculation model: CARUSO”

**There is a large demand
for people with a technical
background in the Dutch
liquid bulk sector**



Working in the Liquid Bulk Sector

There is a large demand for people with a technical background in the Dutch tank storage sector. The average age of employees is quite high and there is a limited number of newcomers. Moreover, the sector is also facing growing technological developments. In the midst of this, maintaining the required level of knowledge will remain a challenge for the sector.

Hence, it is the role of VOTOB to stimulate young people into choosing a career in the liquid bulk sector. Labour market issues transcend the responsibility of individual companies, therefore VOTOB plays an important role to guarantee a sufficient number of knowledge workers.

Lastly, VOTOB is also in the process of developing an educational curriculum for both junior and senior terminal operators which will make it easier for them to gain the required knowledge and enter the sector as skilled individuals.



*“We educate
people to become
skilled and
dedicated terminal
operators”*



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VOTOB

Loire 150, entrance C

2491 AK The Hague

The Netherlands

+31 (0) 70 337 87 50

info@votob.nl

www.votob.nl

