



## Viribus unitis?

Dear readers, 2009 proved to be a difficult year for many market players. Although the transported quantities and turnover dropped during this period, we were faced with a full load of new tasks and regulations that made rail-freight traffic much harder for everyone concerned.

I am thinking here of snap decisions and uncoordinated solo attempts from various parties on the topic of safety, though also of newly enacted ordinances, particularly with respect to checks, maintenance and data acquisition for wheelsets. And the recent announcement by Trenitalia that it would be all but ceasing the transport of hazardous goods as per the end of 2010 really takes the cake.

In view of the brisk intermodal competition that rail-freight traffic is already facing, we have to ask ourselves whether it would not be better for all concerned to join forces and provide the best possible support for keeping freight transport by rail competitive. Isn't it high time that our industry enjoyed some effective lobbying, a more up-to-date and generally more effective representation of our interests?

Philipp Müller  
Delegated by the Board of Directors

## Perspectives for rail-freight traffic in an altered framework – structures, plans and challenges

**Even though rail-freight traffic suffered some serious setbacks last year, there are still a lot of signs indicating that there will be a significant rise in rail transport again in the future.**

Haulage distances have risen steadily over the years, a trend that benefits rail transport systems with their large share of fixed costs. Furthermore, cross-border rail concepts are once again becoming more attractive due to the increasing international division of labour. And finally, labour and energy costs will continue to rise in the future, and these do not affect railways as much as they do other transport modes.

However, the key factor is the efficiency and quality of freight railways, both of which have risen significantly over the past few years due to the intense intermodal competition. Nevertheless, there is still some need for action in countries such as France where there has been a steady shift in shipments from the railways to the roads over past years due to quality defects. Even if the outlook for rail-freight





The traffic problems of the future can hardly be overcome without a working rail-freight traffic system.

traffic is looking brighter in the medium term, the industry is facing some serious challenges.

#### **Risks for all rail transport companies**

A functioning market exists today for all types of rail services, from engines and cars, engine drivers through to railway operations managers. The procurement industry has followed the example set by rail freight companies on an international level and created some very efficient organisations and structures. But the risk is spread unequally: whereas rail transport operating companies face fierce competition and run the risk of losing orders during calls for tenders in this largely fixed cost business, the suppliers/service providers are often awarded the orders even if they change the rail freight companies since the “new” rail transport company also

«Even if the outlook for rail-freight traffic is looking brighter in the medium term, the industry is facing some serious challenges.»

needs personnel and assets. This is one of the reasons why the returns are higher in the procurement market than in freight

railways, and investors prefer to invest in the procurement than in the rail transport company market. Due to the longevity of engines and cars, rail freight companies have to make long-term investment decisions in a dynamic market environment. These investment risks are acceptable if the higher risk is offset by a corresponding return on capital. Unfortunately, this is not the case in rail-freight traffic: most rail transport companies only just succeed in financing their interest payments, and not just since the start of the financial crisis. Further shakeouts will be the consequence.

Without going into any great detail about possible adjustment strategies here, the main options open to rail transport companies are as follows:

#### **Various alternatives for action**

Railway operations are very complex and require a great deal of coordination. A number of railways tackle this complexity through central structures, which almost inevitably lead to high overhead costs and information deficits compared to decentralized structures. One alternative is specialization: a clear focus on organisationally stand-alone business activities which play to one's own key strengths. It

is important that specialized activity can survive on its own and makes a profit since in times of competition any cross-subsidising is frowned upon by the market.

The former state railways in particular tend to operate with a very high degree of vertical integration and primarily utilize their own equipment (e.g. locomo-

«Railway operations are very complex and require a great deal of coordination.»

tives and cars). This can result in a high level of asset utilization and presents a significant risk of running out of capacity. An attempt should therefore be made to produce the base load with one's own resources wherever possible and to outsource peak requirements. It should also be considered whether holding one's own assets really is part of the core business of a rail freight company or whether cooperations and strategic alliances would not be the better alternative.

Controlling is still underdeveloped in a number of rail freight companies. In order to manage a business efficiently, detailed information is needed on where exactly

the costs are incurred, what are the real cost drivers and which specific costs do the individual processes entail.

Cooperations can exist on the same value creation level, example.g., if rail transport companies market common trains, connect groups and single cars via hub systems, pool resources or use joint know-how. Provided there are no restrictions imposed by anti-trust legislation, these can lead to significant synergy, time, risk and flexibility advantages.

We should thus welcome the X-Rail-Initiative, where the rail freight companies involved hope to achieve a significant increase in the quality of wagonload freight. Whether this initiative is in fact a success depends largely on whether the players involved are prepared to subordinate their own interests to the success of the overall product. This was not the case, at least in the past. In view of the current problems, we are optimistic that not all errors of the past will be repeated. This is urgently needed too. The traffic problems of the future can hardly be overcome without a working rail-freight traffic system. ■

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## At a glance

# How is a container car built in only 60 seconds?

**Did you always want to see how a container car is built in only one minute? Watch our 60-second film on the home page of [www.wascosa.ch](http://www.wascosa.ch).**

If you can spare more time to see how a modern container car is built, visit the WASCOSA filmbox in the «News/current» section.

Do you have video material that may be interesting for the filmbox? If so, contact us at [infoletter@wascosa.ch](mailto:infoletter@wascosa.ch). ■



Tank car for conditioning in the tank car center

## Interesting facts

# Inner linings of tank cars

Tank cars need a special inner lining to transport certain chemicals. But it is often not easy choosing the right lining with the wide variety of materials that are available. WASCOSA AG and HAW Linings GmbH have been working together for several years so that they can offer their customers the optimum material. Various highly resistant materials are processed to line tank cars that transport aggressive products. Hard and soft rubber linings are used alongside special coatings. The optimum material can thus be chosen and used for every need.

Further information from:  
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### Hard rubber linings

Crosslinked hard rubber linings have a wide range of applications and are very resistant to mixed use. They are ideal as protection against commodities with a high diffusion effect (hydrochloric acid, ammonia as well as a number of organic solvents). They are particularly recommended for use in rigid or reinforced containers such as the tank cars used for rail transport.

### Soft rubber linings

In the case of special products, e.g. chlorine bleach, it is best to coat the tank car with a soft rubber lining specially developed for the product as its resistance to damage is much higher than that of a hard rubber lining. Soft rubber linings also have high ultimate strain and special

resistance properties. Butyl rubber or soft rubber linings on a Hypalon basis are offered in such cases. The butyl rubber lining permits the transport of chlorine bleach

«In the case of special commodities it is best to coat the tank car with a soft rubber lining specially developed for the product.»

with over 180 g/litre of active chlorine and has a maximum temperature resistance of up to 120 °C.

The main demand for rubber-lined tank cars is to transport hydrochloric acid. A hard rubber lining is preferred here for cost reasons.

## Application of rubber linings

Both hard and soft rubber linings are introduced into the tank in strips. The steel base material requires special preparation. An adhesive system that matches the lining is applied to the sand-blasted surface in several steps. The rubber strips are applied by hand with heated tools and calls for great professional skill on the part of the installing personnel. If the sizes allow, the linings are then crosslinked in autoclaves at temperatures of up to 150 °C and a maximum pressure of 5 bar to give them their chemical and thermal resistance. HAW has access to the biggest autoclaves in the rubber-lining industry (Ø 6 m x L 16 m) and can accommodate all tanks that are moved on rails can be heated in these.

The service life of linings varies depending on the type of rubber and use and is normally around 15 years (except for hydrofluoric acid, where the life is 5 – 6 years at high concentrations above 70 %). It also depends on whether different chemicals are transported in the same take

«The main demand for rubber-lined tank cars is to transport hydrochloric acid.»

and whether there is careful cleaning of the tank between loads. If damaged, the lining is repaired with a similar material. The advantage of this is that there are no restrictions in the resistance properties after the repair. Safety takes top priority here, too.

## Special coatings as required

A further important product group are coatings on a synthetic resin basis. A coating on a zinc silicate basis can be used when transporting organic solvents. A coating also exists on the basis of a brushable rubber lining that is used in areas which are not exposed to constant contact with the product and whose chemical resistance is similar to that of a rubber lining. This is ideal for areas such as overflow troughs and aprons that had been rubber-lined at great expense up to now.

## Ways to test linings (rubber linings)

### Visual inspection

Check for cracks, blisters and flaking (e.g. in the seam areas of the lining). Appearance and condition of the surface (changes such as tackiness of the surface, etc.) .

### Coating thickness measurement

Measure the remaining lining thickness relative to the original thickness (wear or swelling of the lining).

### Shore hardness measurement

The lining manufacturer specifies the shore hardness range for the measured values. In the event of deviations above/below these values contact the hirer and/or the manufacturer of the lining.

During the measurement of the shore hardness the penetration depth of a special needle is transmitted to a rotary pointer with a scale of 0 – 100. Hard rubber and soft rubber are tested with different needles (Shore D hard rubber, Shore A soft rubber).

### Spark test

Test the lining for resistance to sparks with a test device (e.g. Elmed test device - can be found at [www.elmedgmbh.de](http://www.elmedgmbh.de)). The smallest of pores and cracks that go through to the steel tank can be identified.

Highly graphitised linings cannot be electrically tested.

## Cleaning tank linings

Tank linings based on hard and soft rubber linings can be cleaned at high pressure with clean water. Organic-based additives may not be used. Consult the manufacturer before using other cleaning agents.

## Repair methods

The lining should be repaired with a similar unvulcanised material if damaged. The primer system is very important here as it forms the bond between the steel wall and strip of rubber lining. Different manufacturers use various systems based on their special know-how. Only then can the unrestricted use of the repaired tank car be guaranteed to transport products.

Repairs with repair cement should only be carried out in an emergency. You should always consult the manufacturer of the repair cement about the chemical / thermal resistance.

Repairs should normally be vulcanised:

- using a damper register (small repairs)
- by means of pressure vulcanisation (larger and diverse repairs in the tank)

Other repair methods must always be agreed with the manufacturer of the lining. ■

The last page of this edition of the WASCO-SA infoletter contains a useful summary of inner linings (rubber linings) for tank cars.



Crash buffer and protection against climbing onto the tank - two different elements in the WASCOSA safety package.

# The best way to minimise risks – the safety package for tank cars from WASCOSA

The recent railway accidents in Viareggio and Barendrecht have led to an increased awareness of safety amongst the population and those experts involved in the system. Changes in the principles of maintenance are currently being discussed throughout Europe. WASCOSA now offers a complete safety package for the best possible minimisation of risks. The accident in Barendrecht demonstrated that effective measures do exist that can help prevent more serious damage.

The safety component of the crash buffer that had been fitted in the WASCOSA cars involved in the accident in Barendrecht at the customer's request absorbed

«With this comprehensive safety package we create added value and thus successfully satisfy our customers' need for individual risk minimisation.»

an important part of the released energy and was instrumental in ensuring that the tanks and load remained intact, thus helping to prevent far greater damage.

Crash buffers are one of the various "safety modules" in the new WASCOSA safety package. Individual features have been successfully implemented in the recent past in new construction projects for various customers. This experience, or rather the positive reactions from the shipping industry to these optional safety devices, has encouraged WASCOSA to develop a comprehensive safety package which is now available to customers.

The package contains on the one hand components that can be used in both exist-

ing and new cars. On the other hand it also includes parts that can only be taken into account when building new cars such as a newly developed, patent-pending rollover protection. Shippers are thus offered a flexible choice of optional extras that can be combined to suit individual needs. The extra costs of these safety features are borne in part by WASCOSA itself and thus only appear proportionately in the individual hire charges. Although this does not result in an economic advantage for WASCOSA in the short run, the aim of this new safety package from WASCOSA is to make the rail transport of hazardous substances safer and thus create added value for the customers

WASCOSA has advocated the highest possible safety standards for its fleet of

«Protection against climbing onto the tank – an important part of the WASCOSA safety package to prevent tank deformation due to collisions.»

cars for many years. For example, since the end of the nineties the Zug-based company has actively advocated that tank

Would you like to learn more about the WASCOSA safety package and its elements?

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cars for hazardous substances throughout Europe be fitted with derailing detectors; WASCOSA itself operates the most cars in Europe with this system. ■

## Derailing detection: what now after the RID technical committee?

A number of serious accidents occurred on the Swiss rail network between 1989 and 1994 that involved trains carrying hazardous goods. Every time this led to a major fire caused by derailing, as was the case in 1994 in Zurich-Affoltern. As a result, SBB introduced measures to prevent or detect derailing in a timely fashion. Derailing detectors were installed in over 600 tank cars for this purpose. These devices open the main brake line of the car if they detect vibrations caused by derailing and trigger emergency braking of the train.



Ernst Winkler, Hazardous Substances Officer at WASCOSA AG, Member of the RID Technical Committee

These measures did not remain restricted to Switzerland: during international conferences Switzerland went to great lengths to convince all of the RID contractual states to adopt these measures too. Following lengthy discussions, in 2007 the RID Technical Committee adopted a provision specifying which tank cars have to be fitted with derailing detection units. Battery cars are included, as are tank cars carrying specified liquid and gas products. These detectors have to immediately signal any derailing to the driver; and furthermore: "Emptying of the main air line will be regarded as a clear signal. The requirements will be deemed to have been met if the equipment is approved in accordance with UIC Leaflet 541-08 (6/2007, 4th edition)."

At the same time a temporary arrangement was established for the further use/retrofitting of existing tank cars. The rulings should apply as of 2011 for all cars carrying gases with classification codes "T" or "F" and all other substances for which a minimum design pressure of 10 bar is prescribed.

In the meantime, ERA has published a study on derailing detectors and challenged the decision of the RID Technical Committee. This is why the committee

once again took up the topic in 2009 in Sofia and passed the following provisional resolution:

"TE XX: Tank cars transporting gases and substances in a liquid state as well as battery cars must be fitted with a device to detect any derailing. This device must immediately and clearly signal the derailing to the motor vehicle driver. This device must satisfy the require-

«The meeting of the study group in May 2010 in Bern should verify whether derailing detectors are to be stipulated for carriers of hazardous substances.»

ments of the technical specifications for interoperability (TSI) and the standardised technical regulations (ETV) of the OTIF (freight car, operation, tunnel safety)."

Its enactment has been postponed until 2013; the EU wishes to use the interim period to carry out further studies on the following topics, amongst others:





- Derailing prevention measures
- Effects of false alarms
- Comparison of the decision-making process of the safety/interoperability guidelines with resolutions of the RID Technical Committee
- Effects of automatically triggered emergency braking in tunnels/on bridges

The results of these studies will probably lead to a differentiated assessment of the consequences and the wording of the ruling will undergo further amendments. Put plainly: it still remains to be seen whether the provisional resolution will in fact come into force in 2013. In addition, the study group for tank/vehicle technology has been commissioned to validate the provisional resolutions on the basis of the ERA investigations.

The meeting of the study group in May 2010 in Bern should verify whether derailing detectors are to be stipulated for further hazardous substances. This is by no means a simple task! After all, this is a political decision – the study group could reach the limits of its competence, especially against the background of the disputes between OTIF, ERA and the EU Commission as to who has the final word in Europe when it comes to the drafting of laws and regulations for rail transport. ■

## On our behalf

# Personnel changes in the management of WASCOSA AG

**Due to the significant expansion of the WASCOSA fleet of cars – which now ranges from tank cars for the chemicals and petrochemical industry, cars for combined traffic, right through to cars for bulk goods transportation – we have appointed a new sales manager.**

On 1 February 2010 Mr. Roland Stadelmann, a graduate plant and production

«We challenge both ourselves and our partners every single day as part of our obligation to achieve the best for our customers and their visions.»

engineer from the ETH, took on this very responsible job at WASCOSA.

Roland Stadelmann has worked in a number of sales departments at various levels. Through specific further education and vocational training the sales expert has focussed his activities and brings valuable experience in the field of sales and marketing to the management of WASCOSA as a proven expert. ■

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## The GCU car database simplifies daily cooperation

**Railway companies and owners of freight cars have to communicate with each other every single day. Often communications are necessary because of GCU regulations: the transfer of damage reports, questions about maintenance, owners' access to their cars, the clarification of liability and compensation questions, approval for repairs costing more than 750 euros and orders of spare parts and wheelsets are just some examples. Railway companies and car owners must be able to identify the right contact person quickly and easily if the cooperation is to function smoothly.**

Jens van Laak GCU expert at DB Schenker BTT is a member of the Standing Group of Experts for the GCU

Although the railway companies in principle always know the number of a particular wagon – this does not always allow a clear identification of its owner. This information is provided by the up to 5-digit Vehicle Keeper Marking. The Vehicle Keeper Marking can be found on almost every car – but not necessarily on all documents or in every IT system.

Up to now the time spent searching for the right person to answer a question has hampered prompt responses. This is not in the interests of either the railway companies or owners. The launch of the GCU car database has greatly simplified the cooperation since the owner and con-

tact partner can be easily identified from the wagon number. The database was developed by the GCU office according to

«The launch of the GCU car database has greatly simplified cooperation since the owner and contact partner can be easily identified from the wagon number.»

the specifications of members of the UIP, UIC and ERFAs associations.

When and where can the database be found? And how can it be used in practi-

## Don van Riel – Railwayman of the Year 2009 in the Netherlands

ce? The database should be available as of 01.10.2010 on the homepage of the GCU office at [www.gcubureau.org](http://www.gcubureau.org). The wagon number can be entered in a search field. The owner and the contact details that have been saved in the database will then

«The success of the GCU database essentially depends on how well it is maintained and updated by the GCU members. Everyone who updates their data regularly spares themselves and others any misunderstandings and expensive delays.»

be shown. The GCU members will have to enter and update the car and contact data themselves. The data can be updated in a password-protected area. One practical function of the database: it identifies duplicate or erroneous wagon numbers. The GCU office will provide a user manual.

A number of GCU members had repeatedly expressed their request for such a database to make the cooperation easier. The success of the GCU database essentially depends on how well it is maintained and updated by the GCU members. Everyone who updates their data regularly spares themselves and others any misunderstandings and expensive delays. ■

**Don van Riel, the Managing Director of Trimodal Europe in Hoogvliet, the Netherlands, received the Railwayman of the Year 2009 award on 11 February 2010. Van Riel is a very staunch advocate of rail transport. The winner received the “Golden Locomotive” award from Mr. Thom Heijsselaar, Railwayman of the Year 2008 and member of the Board of Directors of Rail Cargo.**

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Don van Riel is not only a market player, he is also very busy in various associations. These include the Dutch Wagon Association (Chairman and Secretary), the Board of Directors of UIP, Fenex/Clecat, the European Forwarding Association, the

«You can ask Don a question and you always get an answer, he is like a walking library.»

Railtechsteering Group under Cefic. He is involved with the government, the port of Rotterdam and national safety authorities regarding noise and dangerous goods.

As Mr. Max Phillips, the director of Railcargo, said: “You can ask Don a question and you always get an answer, he is like a walking library.” ■

## On our behalf



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## Putting a face to your contacts – new staff at WASCOSA since 2009

Due to WASCOSA's constant growth we have stocked up on not only the number of cars but also the number of employees.

Jessica Wassermann, a qualified administrative assistant, has been part of the finance team since January 2009. Following several years experience in accounting and bookkeeping she helped set up a new department in a document management company before joining WASCOSA. Jessica Wassermann began a vocational course as accounting clerk in March 2010. Furthermore, she has been brushing up her English from the day she started.

“There is a great sense of solidarity in the finances team, and interpersonal relations also play a big role elsewhere at WASCOSA – from the management down to the individual teams in the departments, everyone is very helpful.” Jessica Wassermann really appreciates the varied work and is looking forward to a new field of responsibility: WASCOSA's rental accounts will be passing over her desk in future. ■

It's almost a “home game” for Patrizia Ferraro, who joined WASCOSA in June 2009 as an assistant in Technology/Planning Freight Cars. She was already familiar with the position's requirements from her five years of experience while working for Hupac. She also knew some WASCOSA customers from her former employer. WASCOSA also profits from her translation skills for German-Italian and vice versa.

What Patrizia Ferraro really likes about her job is the mutual appreciation of each other's work: “Everyone likes to be praised if they do their job well. This is a matter of course at WASCOSA.” She also enjoys the family-like atmosphere. This spurs her on to give her best. ■

Magnus Naef has been with WASCOSA since the beginning of September 2009. After training as a mechanic with professional certification he studied business informatics at the Fachhochschule Luzern and was then involved in several projects in the field of system technology on an executive level. Following various technical further education courses he is now head of the IT department at WASCOSA.

As the direct contact person for IT matters, he values the exciting and constantly changing surroundings. This, and the op-

«I value the exciting and constantly changing surroundings. This is my motivation, as are the opportunities to actually achieve something.»

portunities to actually achieve something, is his motivation in the IT sector to give his best for WASCOSA along with his team. ■



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David Suana has been the person to contact at WASCOSA when it comes to investments in progressive, innovative and modern freight transportation since

«It won't be long before the head of investor relations has to deal with some new challenges, particularly in this day and age.»

September 2009. His sound know-how is based on several years of professional experience in the petrochemicals industry where he worked as a project manager and financial business analyst.

David Suana, who began his professional career by studying business administration, is very happy working for WASCOSA: "I find it very exciting working in such a forward-looking industry and growing together with the company." It won't be long before the head of investor relations has to deal with some new challenges, particularly in this day and age. ■

Following a commercial training and two years work as a tour guide in the Mediterranean region, Domenica Bruno became involved in human resources and was responsible for 50 trainees in an insurance company. After one year's parental leave she returned to HR in a pharmaceuticals company. She has been an HR assistant at WASCOSA since 1.11.2009 and brings with her a wealth of experience in HR processes in national and international surroundings.

What the mother of two small children really appreciates at WASCOSA is that she can use her know-how in a growing company, can help develop existing HR processes and also stimulate new initiatives. ■

Sabina Faragulo has been working as an assistant in office sales at WASCOSA since November 2009. The qualified commercial assistant clerk with her many years of experience in various lines of industry, including software and insurance, contributes her know-how in office sales, marketing and the service sector as well as all administrative matters. She grew up bilingual – German/Italian – and can also deal with WASCOSA customers in a competent and friendly manner in English and French.

What she likes about her work as an assistant at WASCOSA is the independence and diversity: "Contacts with customers and the daily routines are very lively, just the way I like my work." ■



## – a forward-looking forum

**The Freight and Logistics Leaders Forum (F&L) was founded in 1994 and is an international non-profit association. At that time there were not as many transport associations as today and the various players in the field of freight and logistics were not in contact with one another. The forum was founded with the intention of bringing these players together at the highest level to discuss matters of common interest and improve the multimodal freight systems in Europe.**

Today – 15 years later – the Forum has over 80 members who are of great importance with respect to the utilisation, development, harmonisation and moder-

«The main goal of F&L is to encourage the development of logistics services that meet the requirements of a competitive European freight and transport system in a globalised market.»

nisation of multimodal freight systems in Europe and who actively contribute their ideas to these processes.

The main goal of F&L is to encourage the development of logistics services that meet the requirements of a competitive European freight and transport system in a globalised market. F&L holds regular talks with top-ranking EU committees and many of the topics discussed in the study groups have found their way into memorandums of the European Commission or are even reflected in EU legislation.

F&L deals both with questions of practical interest for the EU, such as increasing the efficiency and effectiveness of logistics systems, and with medium to long-term solutions for infrastructure problems with regard to transport per road, rail, air and water. Examples include the recently con-

cluded project NEWOPERA, Motorways of the Seas, Task- Force “Transport Intermodality”, Freight Freeways etc. F&L’s track record includes over 25 successful projects. ■

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### Credits

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# WASCOSA safety day on Thurs. 9 September 2010

The safety of hazardous goods during transport by rail remains an important task, particularly for the tank car sector. For this reason WASCOSA has decided to hold a one-day event this year on the topic of "More safety in rail-freight traffic". The congress will be held on Thurs. 9 September 2010 at the Grillo works in Duisburg.

It will include contributions by top-ranking speakers from BMVBS, CEFIC, CIT, EBA, ERA, JSSG, OTIF, RID technical committee. The contents of these contributions range from the requirements on safety, ways to increase this

safety right through to concrete innovations that will practically improve safety in vehicle construction. At the end of the congress you will be given the opportunity to attend the launch of a newly developed safety tank car. Do you want to be there

when the «Who's who» of the industry get together?

Contact us at:  
info@wascosa.ch

## Calendar

### 2010

20.05.2010 Zurich (CH)	VAP Forum Freight Car Spring conference	Info: VAP Switzerland vap@bluewin.ch / www.cargorail.ch
10.06.2010 Stuttgart (D)	5th Technical Information Event of the VPI	Info: Association of Private Freight Car Interested Parties mail@vpihamburg.de / www.vpihamburg.de
11.06.2010 Stuttgart (D)	VPI Annual Members Meeting	Info: Association of Private Freight Car Interested Parties mail@vpihamburg.de / www.vpihamburg.de
17.06.2010 Bern (CH)	VAP General Meeting	Info: VAP Switzerland vap@bluewin.ch / www.cargorail.ch
17.06.2010 Courbevoie La Défense (F)	AFWP General Meeting	Info: AFWP Association Française des wagons de particuliers Le Stratège blaurent@afwp.asso.fr
<b>09.09.2010</b> <b>Duisburg (D)</b>	<b>WASCOSA safety day</b>	<b>Info: WASCOSA AG</b> <b>info@wascosa.ch / www.wascosa.ch</b>
11.09.2010 Luzern (CH)	Swiss Hazardous Goods Day	Info: Verband der Schweizerischen Ausbil- dungsveranstalter für Gefahrgutbeauftragte vag@ecoserve.ch
15.09.2010 Brussels (B)	UIP General Meeting	Info: UIP Union International d'Associations de Propriétaires de Wagons de Particuliers info@uiprail.org / www.uiprail.org
07.-08.10.2010 Granz (A)	IBS Conference	Info: Interessengemeinschaft der Bahnspedi- teure (IBS) e.V. smulaibs@aol.com / www.ibs-ev.com
18.11.2010 Zurich (CH)	VAP Forum Freight Car Autumn conference	Info: VAP Switzerland vap@bluewin.ch / www.cargorail.ch

# Overview of inner linings (rubber linings) of tank cars

Tank rubber linings		Testing options depending on manufacturer	common lining thickness in mm
<b>Common media</b>			
	Phosphoric acid up to 85 %	90 °C	
	Hydrochloric acid 1-37 %	80 °C	
	Hydrofluosillicic acid up to 31 %	60 °C	
	Hydrofluosillicic acid up to 35 %*	60 °C	
	Soda lye 1-50 %	80 °C	
	Sulphuric acid 1-30 %	80 °C	
	Sulphuric acid 31-50 %	50 °C	
	Hydrofluoric acid up to 31 %	-	
	Hydrofluoric acid 40-75 %	-	
	Sodium hypochlorite up to 140 g/l active chlorine	-	
	Sodium hypochlorite up to 180 g/l active chlorine	-	
	Tertiary butyl chloride	-	60 °C
<b>Hard rubber linings</b>			
Standard material			single-layer 4 mm
Special material	highly graphitised / electrically conductive	high diffusion strength	single-layer 4 mm
<b>Soft rubber linings</b>			
Materials on the basis of Hypalon			single-layer 4 mm two-layer 8 mm
Materials on the basis of butyl rubber			single-layer 4 mm two-layer 8 mm

Hard rubber linings	Soft rubber linings
<p>Ideal to transport hydrochloric acid, for example (high stability)</p> <p><b>Advantage over soft rubber lining:</b> Cheaper than a soft rubber lining / insensitive to solvents</p> <p><b>Disadvantage compared to soft rubber lining:</b> Sensitive to mechanical influences (e.g. impact against the tank)</p>	<p><b>Advantage over hard rubber lining:</b> Wider range of uses than hard rubber linings</p> <p><b>Disadvantage compared to hard rubber lining:</b> Higher costs of production/processing</p>

Comments:  
 Two-layer linings improve the diffusion strength of the rubber lining.  
 \* = no or only small shares of hydrofluoric acid allowed  
 \*\* = Special material / must be agreed with the hirer  
 The data provided above may differ from one lining manufacturer to the next and may have to be agreed with the hirer.

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 No guarantee for the figures and no claim to completeness