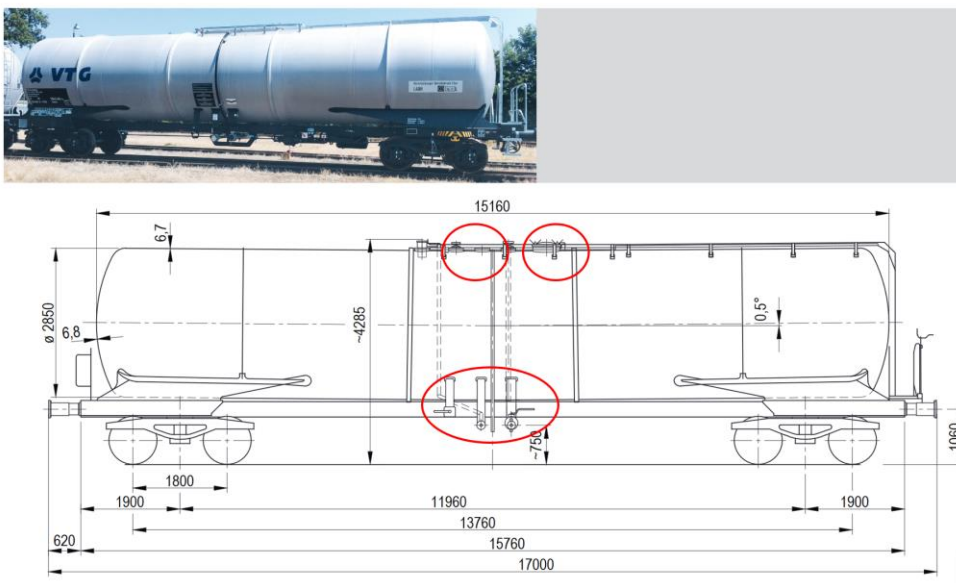


Annex 1 – images and tables

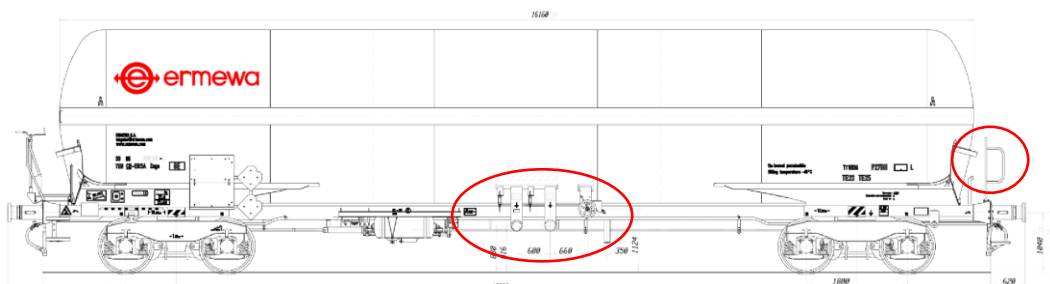
Image1:



Picture above: example of chemical tank wagon and their sealing assemblies with PFAS (highlighted in red).

Source: <https://www.vtg.com/hiring/our-fleet/c60092d>

Image 2:



UIP CONSULTATION RESPONSE on PFAS Ban - Annexes



Picture above: example of gas tank wagon and their sealing assemblies with PFAS (highlighted in red).

Source: <https://www.ermewa.com/en/wagons/zags-113m3-2/>

Table 1: Chemical Resistance of High Performance Polymers.⁴

Chemical compound	PTFE	PVDF	PSU	PPSU	PPS	PPA	LCP	PEEK	PI	PAI	PBI	PEI
Acid, diluted	+	+	(+)	(+)	+	(+)	+	+	(±)	+	±	+
Acid, concentrated	+	+	±	±	+	(+)	(+)	(+)	(±)	+	-	+
Bases, diluted	+	+	+	+	+	+	+	+	-	±	±	+
Bases, concentrated	+	±	(+)	(+)	(+)	+	(+)	+	-	-	-	-
Hydrocarbons, aromatic	+	(+)	-	(±)	+	+	+	+	+	+	+	-
Hydrocarbons, aliphatic	+	(+)	+	+	+	+	+	+	+	+	+	+
Esters and Ketones	+	+	-	-	+	(+)	+	+	+	+	+	(±)
Ethers	+	+	±	±	+	(+)	+	+	+	+	+	+
Solvents, chloride based	+	+	±	-	±	+	+	+	+	+	+	(±)
Alcohols	+	+	±	±	+	+	+	+	±	+	+	+

+: resistant; (+): partially resistant; ±: conditionally resistant; (±): partially not resistant; -: not resistant

Source: <https://www.esaknowledgebase.com/wp-content/uploads/2022/03/ESA-Position-Statement-on-proposed-PFAS-regulation-vtgMarch-2022-1.pdf>

Table 2: Temperature resistance of PFAS material⁵

Symbol	Material name	Working temp. [°C]	Temporary temp. [°C]
PTFE	Polytetrafluoroethylene	260	290
PEEK	Polyetherketone	250	310
PVDF	Polyvinylidene fluoride	150	150
PEI	Polyetherimide	170	210
PPS	Polyphenylene sulfide	240	270
PFA	Perfluoroalkoxy polymer	150	240
PSU	Polysulfone	150	180

Source: <https://www.esaknowledgebase.com/wp-content/uploads/2022/03/ESA-Position-Statement-on-proposed-PFAS-regulation-March-2022-1.pdf>



Annex 2 – References

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2. <https://uiprail.org/about/>
3. European Sealing Association (ESA) position papers:
<https://www.esaknowledgebase.com/wp-content/uploads/2022/03/ESA-Position-Statement-on-proposed-PFAS-regulation-March-2022-1.pdf>
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6. EUROSTAT numbers for 2021, not including Belgium.
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