

			Analysis					
Application area/main use	PFAS used(chemical, commercial or technical name)	Tonnage of PFAS used per year	Justificatican for PFAS use (performance, requirement, special properties)	Alternatives	Feasibility of potential alternatives(technical, economic, regulatory impact)	Waste phase(as percentages) is treated through incineration, landfilling and recycling	Emissions(manufacture phase, the use phase and the end-of-life phase)	Proposed derogation (no / yes-specify)
Gearboxes, geared motors - sealing systems	FKM, PTFE, flourcarbon rubber		Resistance to extreme temperatures - choice of sealing material depends on the application and is related to the circumferential velocity	Current substitutes of FKM only allow ca. 1/3 of the required circumferential velocity, but most of the applications exceed the allowed circumferential velocity of non-FKM seals easily.	Currently, there are no substitutes available which have no significant influence on load density and product life. The risk of leakages increase while the eficiency of the products decrease. Threat to the ability to deliver will force companies to relocate their production. Without shaft seals, the production of gearboxes is at risk.			
Gearboxes, geared motors - sealing systems	FKM, PTFE		Resistance to aggressive chemical substances - Sealings must be compatible with the respective mineral and synthetic oils.		Threat to the ability to deliver.			
Gearboxes, geared motors - sealing systems	FKM, PTFE		Resistance to wear		Threat to the ability to deliver.			
Gearboxes, geared motors - sealing systems	FKM		Reduction of susceptibility to dirt					
Gearboxes, geared motors - sealing systems, Spare Parts	FKM			If spare parts with a different material can be used, the design may have to be revised. If no other material can be used due to the circumferential speeds or other influences, there is no alternative to FKM.				
Electric motors	PFAS (more precise) insulation materials (ETFE, FEP); shaft sealing rings (FKM); rolling bearing grease (PTFE, PFPE)		Resistance to extreme temperature	Without PFAS, the product size increases to dissipate the heat, reduction of circumferential velocity to avoid heat generation.				
Electric motors - vacuum applications	PFAS (more precise) PTFE, PFPE		In vacuum applications, greases without PFAS decompose.					
Coatings	Fuorpolymere		Resistance to wear					
Coatings	PTFE		Resistance to extreme environmental conditions	Currently no adequate substitutes on the market.	Limitation of resistance and durability.			
Ball crew drives - treads	PTFE			No adequate substitutes on the market.	Loss of technical basis for the manufacturing of ball screw drives.			
Plain bearings - treads	PTFE (teflon)			Currently no adequate alternative to PTFE (teflon) on the market.				
Ball bearings - treads	PFPE, PTFE		Vacuum applications		Loss of jobs (short term), economic effects on companies (mid term)			

Ball bearings - treads	PFPE, PTFE		Resistance to extreme temperatures					
Brake pads	PTFE		Resistance to extreme temperatures		Stop of production of brakes for elevators, in mechanical engineering products as well as in the wind industry. (Conversion from friction linings with asbestos to asbestos-free solutions took 10 years.)			
Lubricants - gearboxes	PTFE, PFPE		Resistance to extreme environmental conditions	PFAS supports the reduction of the influence of surface roughness and leads to defoaming of the lubricant	Tests of elastomere compatibility with a specific lubricant takes around 2000 h. This time is needed only to proof the suitability. The functioning test of the new substance is not included. A defined time frame of a derogation of lubricants is not suitable, because at this time no estimation related to reliable timeline exist for an appropriate substitution by PFAS free lubricants.			
Isulation materials - wiring harnesses	PVDF, FEP, ETFE		Protection against hazards from fire and explosion, used also in nuclear environment	Short-term substitution not feasible	Loss of UL certification, application in explosive atmosphere not secured			
Hoses	PTFE, FKM		Resistance to aggressive chemical substances (e.g. contact with adhesives)					
Sliding bushes	PTFE (teflon)		Teflon is relevant for the function of sliding bushes					
Electronic parts	EPDM, silicon rubber		Chemical resistance in aggressive media, a high temperature resistance, low friction, minimal wear (particle minimization)					
Personal protective equipment	PFAS - in general		Resistance to extreme temperatures, aggressive chemical substances					
Release agent	PFAS - in general		Process substance during casting processes or as adhesive materials					