

MOCA Authorisation: Moulder Questionnaire

In the Authorisation application it is important to show the authorities that efforts have been made to substitute MOCA for an alternative, and where this has not been possible that every effort has been made to minimise the potential exposure of MOCA to workers and the environment. In the following sections it is important to provide as much detailed information as possible.

YOUR details	
Contact person	Nereo Sacripanti
Company Name	Polyuretech srl
Country	Contrada Tesino, 43 Z.I. Ovest – 63073 Offida – AP - Italy
E-mail	Nereo.sacripanti@polyuretech.com
Phone	+39 0736373288
Can you explain what your products are and where they are used (industries and applications)?	Manufacturing of elastomeric Polyurethane industrial components based on systems TDI - MOCA

1 ALTERNATIVES AND EXPOSURE

Section 1

Assumption:

It is our understanding that because of the technical/process issues; **large parts (approximately > 100 Kg)** have no technical alternative to MOCA as the pot-life of the alternatives or systems is too short, or the required technical requirements cannot be met. It is technically feasible to produce pieces that are considered **small (approximately < 10 kg)** with an alternative to MOCA and products that are **medium sized (> 10 Kg < 100 Kg)** may have a technically feasible alternative, but this depends on several factors, including shape and specific requirements based on the application.

In addition, the main difficulty for moulders to substitute MOCA is the lack of time available to find an engineering solution/formulation that will meet the technical requirements, with reasonable price or additional features that justifies high prices, for each of its current customers before the sunset date in November 2017.

		Yes	No
Do you agree with the above assumption?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, please explain			

	Small	Medium	Large
Can you estimate the % of products, based on weight of the product, you produce in terms of turnover?	10%	25%	65%
			Yes No

Is the TDI/MOCA system the only cast polyurethane system that you have available in your factory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If you use other curing agents or systems, what are they?	1.4 Butandiol – PTMEG – PPG – TMP – TIPA – Ethacure 300 - others	

Section 2

Alternatives to MOCA			
		Yes	No
Have you tested any alternatives to MOCA?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, which alternatives to MOCA have you tested (tick as appropriate)	Addolink 1604 (or equivalent product)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Ethacure 300 (or equivalent product)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	DETAD-80	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MCDEA	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MDI system	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Others (please specify)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Supplier recommended	Own Research	Regulatory
Can you explain why you decided to test these alternatives?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Can you give a brief description as to why any of these were not suitable for your products	Not suitable because of the relationship between physical-mechanical property end processing system		

Section 3

			Machine	Hand
Do you use a machine/closed system or hand mixing of MOCA with the prepolymer? (if both please tick both boxes)			<input checked="" type="checkbox"/>	<input type="checkbox"/>
If both, which method would you use for the most of your products?			<input type="checkbox"/>	<input type="checkbox"/>
Please give a brief description of your general procedure for using MOCA (include a description of storage, handling, use and any technical data you think is needed)	Automatic loading Clean-Box system with pneumatic transfer system			
			Yes	No
Do you have a glove box for handling MOCA? (A glove box is a sealed container at lower pressure that allows you to handle MOCA in an isolated atmosphere)			<input checked="" type="checkbox"/>	<input type="checkbox"/>
If you do NOT have a glove box, can you please describe the exposure controls you have in place when using MOCA?				

Section 4

		Yes	No
Do you provide your workers with personal protective equipment (PPE)?		X	<input type="checkbox"/>
		Yes	No
Can you identify the types of PPE you provide	Gloves	X	<input type="checkbox"/>
	Safety Goggles	X	<input type="checkbox"/>
	Respiration Protection Mask & filter	X	<input type="checkbox"/>
	Dust mask	X	<input type="checkbox"/>
	Protective clothing	X	<input type="checkbox"/>
	Safety Shoes	X	<input type="checkbox"/>
	Other (please specify)	X	<input type="checkbox"/>
	Tyvek clothes		
Please describe when in the process these PPE's are used, e.g. gloves (cotton gloves to CE standard, handling of container containing MOCA, movement of MOCA container in storage etc.)	In order to avoid contact with MOCA in case of broken containers, we always use PPE in all the handling phases		
How do you handle any waste (e.g. used PPE, spilled/excess MOCA, etc.) from your process	All these wastes are handled as dangerous material. We cooperate with specialized companies for this kind of task.		

Section 5

Monitoring of Worker Exposure					
What is the Occupational Exposure Limit (OEL) for MOCA in the countries that you operate?				15	
				Yes	No
Are there any National Requirements/Methods for Bio-monitoring in your country?				X	<input type="checkbox"/>
Please provide details of any national requirements		<ul style="list-style-type: none"> - Sealed cycle manufacturing process - High performance centralized air aspiration system with active carbon filter - Medical controls every 6 months for the staff - Clinical analysis (cytological and ammines) every 6 months for the staff 			
How many workers are working directly with /handling MOCA?		8 / 12 workers (no direct contact)			
What is the average shift time (hours) that workers would use MOCA?		2 – 3 hours daily for worker (no direct contact)			
				Yes	No
Do you regularly test your workers urine for MOCA content?				X	<input type="checkbox"/>
For the last 5 years, can you provide (please give units e.g. µg/Kg):		Number of measurements/employees tested	Max. Observed	90th Percentile	Median level
	2010	6	0	0	0
	2011	8	0	0	0
	2012	8	0	0	0
	2013	10	0	0	0
	2014	12	0	0	0

Please give details of your cleaning procedures for the machinery used, surfaces that might be in contact with MOCA, etc.	Filters substitution performed by specialized staff excluding the presence of other workers, using direct aspiration device on the area and the following PPE (single use): hooded tyvek suits, gloves, face mask. After the substitution the entire machine is cleaned with specific detergent.
How often do you clean/maintain the machinery which is used for processing MOCA	Filters substitution every 6 months. Weekly machines cleaning (complete cleaning).

Section 6

Monitoring of Worker and Environmental Exposure		
Can you estimate the size of the process hall where MOCA is used (m ³)	18000 m ³	
	Yes	No
Do you have monitoring results on MOCA concentration in working place air (Static or Personal sampling)?	<input type="checkbox"/>	X
Please provide details on the location of these monitors and information related to MOCA levels.		
	Yes	No
Do you have Local Exhaust Ventilation (LEV) installed to control exposure to MOCA?	X	<input type="checkbox"/>
Where is the LEV located/used?	It is located in all the risky zones.	
What is the cycle time (efficiency) for Air replacement in the processing hall where MOCA is used? e.g. 2 cycles per hour	15 cycles per hour	
	Yes	No
Does the LEV have a scrubber/treatment method/filter attached?	X	<input type="checkbox"/>
If present, how often are these filters changed?	Filters substitution every 6 months.	
Please provide information on the level of MOCA found in the exhaust air from the LEV (if known)	Since we have a sealed system, we never recorded MOCA contaminations	
	Yes	No
Are these filters disposed of through a registered Waste Contractor?	X	<input type="checkbox"/>
How often do you clean any work surfaces where MOCA might be present?	Since we have a sealed system, we never recorded MOCA contaminations. Anyway surface cleaning is carried out daily	
Please describe how this cleaning is performed and any information related to MOCA concentrations monitored during cleaning	We use a specific detergent but anyway we never recorded any MOCA contamination	
Please give information on concentration of MOCA in waste water delivered to the sewer system	We do not use water for cleaning and the employed detergents are disposed as dangerous material. Anyway we never recorded MOCA contamination	
Please give information on how MOCA containing waste is disposed of	MOCA containers are sealed and disposed by specialized companies	

Section 7

		Yes	No
Do you have any information related to the concentration of free MOCA in your products?		X	<input type="checkbox"/>
If Yes, can you please provide the results:	We verified many times that there are no MOCA contaminations		
		Yes	No
Do you know how this concentration was derived?	Wipe Test and Extraction	<input type="checkbox"/>	<input type="checkbox"/>
	Powdering of product and Extraction	<input type="checkbox"/>	<input type="checkbox"/>
Do you know a standard method (ASTM, ISO, EN etc.) for obtaining the level of free MOCA in your products?		X	<input type="checkbox"/>
If Yes, please specify	lab analysis		

Section 8

	2-4 yrs	7 yrs	12 yrs	Other	
Can you estimate how long it would take for to have a viable recipe with an alternative to MOCA, for ALL of your current customers/applications, after 2017?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Can you provide a justification for this choice?	We have verified for more than 2 years testing many alternative products (almost all the substitutes in the market). From the collected data we have not been able to find a substitute which referring to the relation between physical- mechanical properties and manufacturing process, can substitute MOCA. So we believe that until a new molecule will not be on the market we can't provide a substitution time. PLEASE NOTICE: in the reported declaration we did not refer anyway to price, since it is not relevant for our applications.				
				Yes	No
Have you already replaced MOCA in any of your products?				<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 ECONOMIC DATA

Section 1

	Answer a, b or c
What description is most appropriate for your company?	
Micro enterprise (<10 employees and annual turnover or annual balance sheet <€2 million)	<input type="checkbox"/>
Small enterprise (<50 employees and annual turnover or annual balance sheet <€10 million)	<input checked="" type="checkbox"/>
Medium-sized enterprise (<250 employees and annual turnover <€ 50 million or annual balance sheet <€ 43 million)	<input type="checkbox"/>

Large enterprise (>250 employees and annual turnover >€ 50 million or annual balance sheet >€ 43 million)	<input type="checkbox"/>
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What description is most appropriate for your company?		Answer a, b or c
a. Specialised moulder (producing large quantity of specific products, serving specific industries)		<input checked="" type="checkbox"/>
b. Generalized moulder (producing make-to-order products, low quantity per products, serving a large number of industries)		<input checked="" type="checkbox"/>
c. Other		<input type="checkbox"/>
If Other, Please describe		

Section 2

What is your annual turnover, average of last three years?	2300000 €
What is the average share of raw material cost in the turn-over?	18%
What's your annual operational profit (EBIT), average of last three years?	150000€
What % of your total business does MOCA account for?	60%
How many employees do you currently have?	22 / 25
How many customers do you have on average per year?	150
How many different products do you produce on average?	400 / 800

What is your annual usage of MOCA in tonnes?	10 / 12 tonnes
How is your MOCA volume (use) likely to develop in the future if MOCA can still be used?	<input checked="" type="checkbox"/> increase <input type="checkbox"/> stay stable <input type="checkbox"/> decline
What is the expected lifetime of your factory/machinery?	50 years end more

2.1 POTENTIAL NON-USE SCENARIOS

In our discussions with the supply chain members so far, two potential non-use scenarios have emerged:

1. Replace MOCA with other alternative(s) or systems for each application

OR

2. Production with MOCA would be relocated outside the EEA or production site would be shut down

In the following we shall describe the two in more detail. **Depending on which non-use scenario you have chosen as the most realistic one for you, please answer the questions below.**

Scenario 1. Replacing MOCA with the best available alternative

This scenario is relevant mostly for the **generalists** since the specialists are more dependable of MOCA. Since MOCA has a number of technical advantages and price advantage, a suitable alternative solution for any particular application has to be one that has similar technical performance, as well as additional features to justify the increased material cost. The search will take time for the large number of applications generalist moulders currently provide. It is unlikely that suitable alternatives will be found for all applications by the sunset date. Therefore, it is likely that the generalist moulders will suffer immediate business loss right after the sunset date. With time pass by and suitable alternatives are found for the applications, a gradual recovery of some part of the business may happen, but it is unlikely that recovery will be 100%. In addition, moulders may invest in new machineries or even molds to accompany the alternative materials.

	Yes	No
Is scenario 1 likely to happen to your company if MOCA is not available anymore?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IMPACTS OF THE NON-USE SCENARIO 1

How large part of your production would you expect to lose because of a possible MOCA ban after 2017?	60 %
<ul style="list-style-type: none"> Can you estimate how large part of this would be permanently lost? 	40 %
How much do you expect to invest in new machinery or moulds etc. due to using an alternative system?	Don't know, it does not depend either on machines or moulds.
Can you estimate the number of jobs that would be lost in your company due to this scenario?	60%
What is the median annual salary of the employees in your company?	35000€

Scenario 2. Relocating production with MOCA outside the EEA or facility shut down

This scenario includes possibilities of relocating the production with MOCA to non-EEA countries e.g. Russia or Turkey, or even shut down the whole facility. This is relevant mainly for **specialists or the generalists with the least financial resources**.

If the moulders consider relocation, there will be relocation cost. There may also be one-time cost related to shut-down, e.g. environment liability or site clean-up. If this scenario is chosen for the SEA, it will be because it is technically, legally and logistically possible. In that case, the main impact will be one-time cost as described, the lost production value and its associated larger socio-economic losses.

Considering my 30 years experience with PU manufacturing and TDI-MOCA systems and the several lab tests carried out during these years, we believe that employing MOCA in a safe way (sealed cycle) and trying to avoid the possible contaminations the material can be considered safe. It is clear that, to respect all these processes and safety operations it is necessary to have a suitable and highly technological industrial facility, where all the processing procedures can be controlled. As a conclusion, we believe that REACH-LAW should give specific indications for the employment of MOCA, providing an authorization according to the capabilities of each company.