



2e partie :

Comment les secteurs
agroalimentaires peuvent-ils se
préparer aux teneurs maximales?
fixées par le ministère de la Santé ?



Financé par
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Ordre du jour :

1. Qui suis-je ?
2. Quelles sont les implications des teneurs maximales (TM) des MOAH pour les partenaires commerciaux ?
3. Voies d'introduction dans les denrées alimentaires – Boîte à outils
4. Stratégies pratiques d'atténuation – Que pouvons-nous faire ?
5. Comment trouver un laboratoire fiable : la complexité des analyses
6. Questions / Discussion

01.

Qui suis-je ?
Puis-je me présenter ?

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<https://foodsafetyfirst.jimdosite.com/>

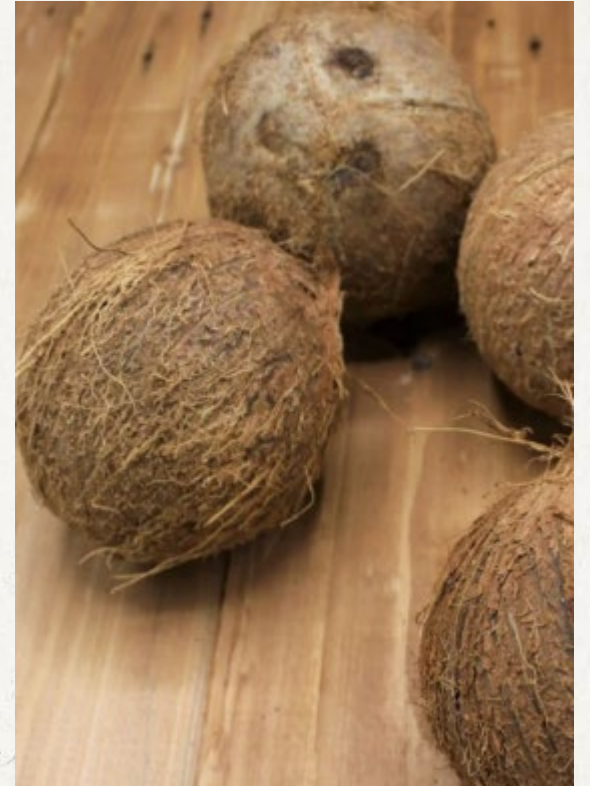


02.

Quelles sont les implications des teneurs maximales (TM) de l'UE en matière de MOAH pour les partenaires commerciaux ?

02. Quelles conséquences pour les partenaires commerciaux ?

- Les opérateurs doivent être prêts d'ici janvier 2027 pour se conformer aux nouvelles teneurs maximales. Cela exigera des mesures de la part des partenaires commerciaux afin de garantir l'absence d'impacts négatifs sur les échanges.
- Les hydrocarbures d'huiles minérales **doivent être réduits à la source** ; ils ne peuvent pas être éliminés de manière significative lors des étapes ultérieures du processus.
Une exception : le raffinage des huiles végétales permet d'éliminer partiellement les hydrocarbures d'huile minérale.*
- Il existe plusieurs voies de migration des hydrocarbures minéraux vers les denrées alimentaires, et des solutions différentes pour chacune d'entre elles.



*Bieber (2024)

02. Quelles conséquences pour les partenaires commerciaux ?

Quelques avantages des teneurs maximales (TM) dans la législation et quelques défis

- ❑ Des règles plus claires avec des teneurs maximales spécifiques pour certains produits
- ❑ Pour certaines denrées alimentaires, des TMs temporairement **plus élevées** s'appliqueront par rapport aux anciennes limites LQ de la déclaration du SCoPAFF
- ❑ Augmentation probable des contrôles relatifs aux MOAH dans toute l'UE
- ❑ Une approche plus cohérente en matière d'application de la réglementation pour les denrées alimentaires contenant des MOAH > TM
- ❑ Exigences accrues des entreprises européennes envers leurs fournisseurs quant à la preuve de conformité aux teneurs maximales en MOAH

03.

Voies d'introduction dans les
aliments

Boîte à outils

03. Sources de contamination

Boîte à outils*



*Food Drink Europe (2018)

03. Sources de contamination : boîte à outils



ROUTES OF ENTRY INTO FOODS

From the described sources, MOSH, MOSH analogues and MOAH can migrate along the entire process chain into foods using different routes.

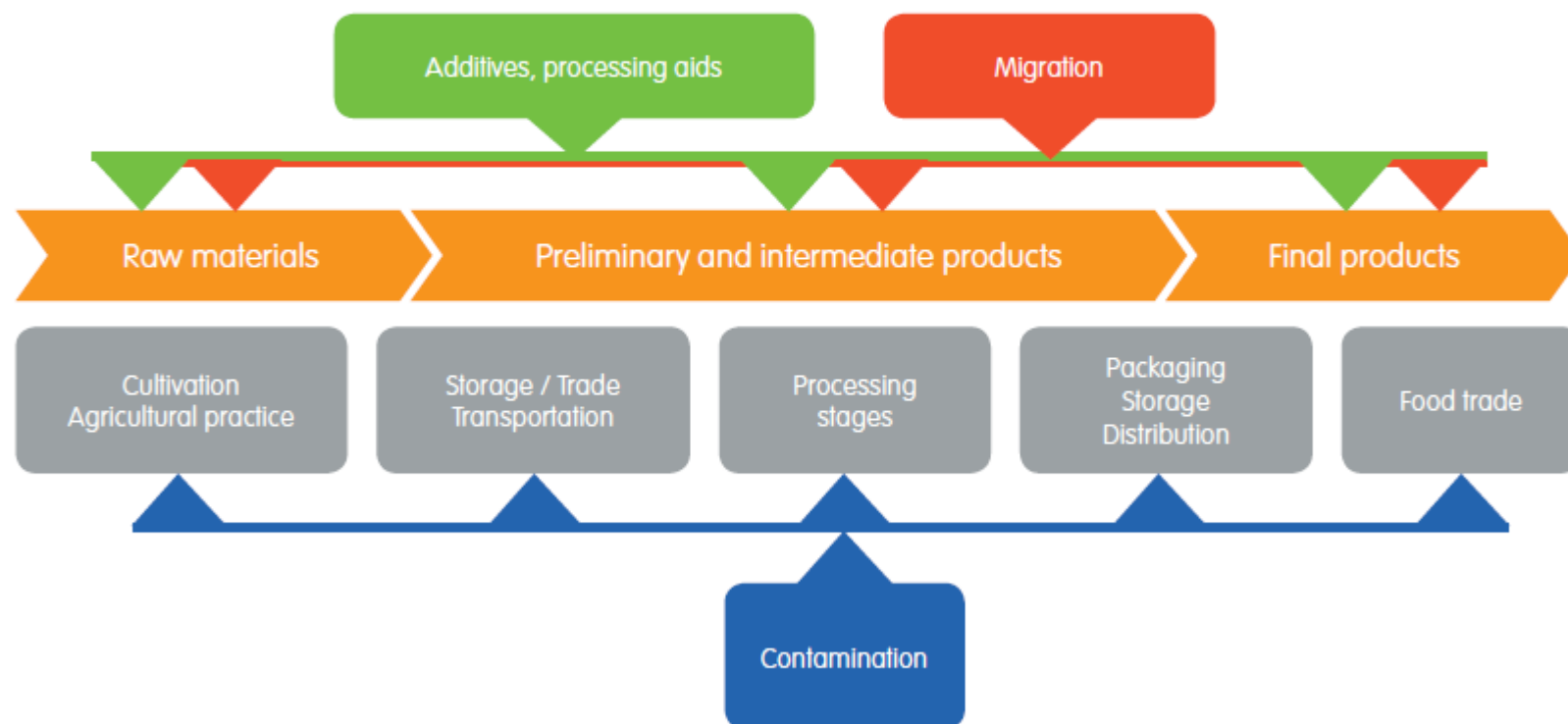


Figure 1: Systematic illustration of the routes of entry of MOSH/MOSH analogues and MOAH into food (according to [4])

03. Sources de contamination

Boîte à outils : Migration – principalement les emballages



Source	Route of entry/ cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Notes/examples
Paper/ carton/board	Primary packaging	MOSH/MOAH	Where necessary, use fresh fibre products : Bags, folding boxes and corrugated board made from fresh fibres 	● Consider recommendations (BfR or CoE) for the production and use of papers, cartons and cardboard that come into contact with food; GMP guidelines of the associations for folding boxes and prints. ● Not all fresh fibres are free from MOSH/MOAH because entry through processing aids used in paper production is possible; fresh fibre fraction can absorb MOSH/MOAH during storage; fresh fibre is not a barrier. ● Ex: Specified primary fibre cartons according to DIN, such as GC1, GC2, GN4 and others.
Paper/ carton/board	Primary packaging	MOSH/MOAH	Where necessary, use functional barriers for final product packaging: coatings, bag-in-box systems or liners (Kraft bags), corrugated boards Applies also to packaging of upstream products 	● Use barrier materials suitable for raw materials/ upstream and intermediate products: ● coatings: co-extruded plastics or surface finish of cartons, e.g. in cartons or paper bags ● Ex: Barrier optimised products, e.g. for folding boxes or corrugated paper cartons. ● EVOH, PVDC, PA, PET, BOPP for bag-in-box

Papier et carton recyclés :

Les MOSH/MOAH sont dans les encres d'impression (du MOH pur !)

03. Sources de contamination

Boîte à outils : Migration – principalement les emballages



Source	Route of entry/ cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Notes/examples
Paper/ carton/board	Container linings/ liners	MOSH/MOAH	Use of low mineral oil linings (dressings), in particular for sea transport 	● Container dressings for the transport of bulk and bagged goods in containers or open bulk goods should be free from mineral oils and free from waste paper substances or equipped with functional barriers. ● Concretise FCC guidelines.
Paper/ carton/board	Container liners	MOSH/MOAH	Use alternative materials for the absorption of moisture/humidity in transport containers 	● Refrain from using carton dressings made from waste paper or based on recycling materials.



03. Sources de contamination

Boîte à outils : Migration – principalement les emballages



Source	Route of entry/ cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Notes/examples
Jute and sisal fibres	Bags	MOSH/MOAH	Request use of suitable jute bags according to IUP (food grade) and use of vegetable batching oils 	● Refers to e.g. transport of bulk goods such as cocoa beans, grains, spices in jute bags from countries of origin; no sufficient definition of "food grade quality". ● Comply with IJO Standards, no quality standards as regards MOSH/MOAH levels.



Mais aussi le stockage « en vrac / en tas » sur des sols en bitume et en asphalte utilisez des sols en béton ou recouvrez-les de bâches.



03. Sources de contamination

Boîte à outils : Contamination



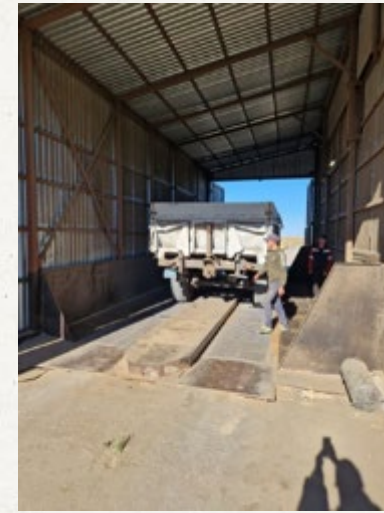
Source	Route of entry/cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Note
Lubricants in food processing (food grade incidental food contact)	Damage, contamination, continuous entry	MOSH/MOAH MOSH analogues (PAO, MORE)	Use specified and internationally certified NSF lubricants (NSF-H1) or synthetic lubricants. Minimise technically inevitable entry (instructions, staff training). Adhere to hygienic design of equipment (lubrication cup, motors etc.) by maintenance 	● "Food grade" lubricants for machines and equipment, use in food production without intended food contact. ● Lubricants on mineral oil basis may contain MOSH as well as MOAH. MOAH-free products are available; according to FDA: maximum residue of 10 mg "mineral oils"/ kg food for H1 lubricants. PAO will deliver false positive results after damage. Synthetic lubricants are more homogeneous, not free from MOSH and PAO, free from MOAH.



03. Sources de contamination

Boîte à outils : Contamination

Source	Route of entry/cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Note
Technical lubricants	Continuous entry through harvesters or damage	MOSH/MOAH MOSH analogues (PAO)	Avoid/reduce leaks that may result in the entry of lubricants Use suitable lubricants (NSG-H1/ NSF-H2) at all primary production levels, if possible	- Elaborate maintenance and damage action plans in case of leaks and accidents. - Ex: Use of harvesters e.g. combines, and conveyors in harvesters.
Technical lubricants	Transport chain	MOSH/MOAH MOSH analogues (PAO)	Prevent/minimise entry of lubricants. All pneumatic and belt conveyors are concerned. Use H1 lubricants within the entire transport chain, if possible	Even when using H1 lubricants, MOSH and PAO may enter, e.g. conveyors, fork lifts, contaminated transport containers or carriers (e. g. returnable pallets).



03. Sources de contamination

Boîte à outils : Contamination

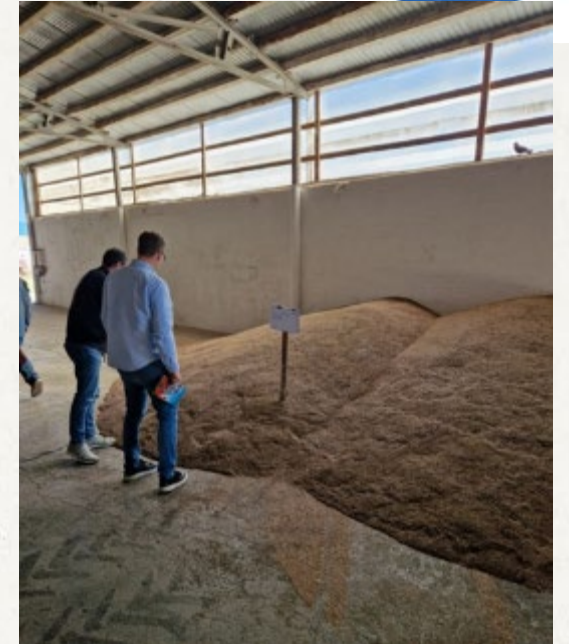
Source	Route of entry/cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Note
Lubricants - technical quality	Compressed air Pneumatic plants	MOSH/MOAH MOSH analogues (PAO, MORE)	Check compressed air for oil penetration on a regular basis Use oil-free compressors, and if possible, draw in zero-emission environmental air	- The quality of compressed air is stipulated in the Standards DIN ISO 8573 ff. According to ISO 8573-1 a maximum residue oil level of 0.01 mg/sqm was defined for compressed air with food contact. - Ex: Use of compressed air for spray drying, pneumatic conveying plants for the transport of granulates or powders (e. g. filling and emptying of silos); contact of food with compressed air in filling/packaging lines.
Smoke, gases from drying/combustion	Drying methods	MOSH/MOAH	Avoid direct drying of raw materials with combustion gases dependent on the energy source	Concerns mainly entry of volatile hydrocarbons and PAH during drying processes, e.g. spices, grain products.



03. Sources de contamination

Boîte à outils : Contamination

Source	Route of entry/cause	Saturated and unsaturated mineral oil hydrocarbons/groups	Tool	Note
Technical lubricants	Damage or systematic contamination	MOSH/MOAH MOSH analogues (PAO)	Prevent contact between raw materials and storage areas/floors contaminated with lubricants No raw materials from contaminated cultivation areas	● Occurs during handling of raw materials in the country of production (e. g. drying) or during transportation (e. g. loading platforms).
Exhaust gases	Environmental air ventilation	MOSH/MOAH	Avoid contamination by exhaust gases. Check vehicle fleet, check external air inlets	● Prevent trucks from backing up to storage areas, turn off motors, etc.



03. Sources de contamination

Boîte à outils : Additifs – Auxiliaires technologiques



Source	Route of entry/ cause	Saturated and unsaturated mineral oil hydrocarbons/ groups	Notes/examples
Dust control agents	Spraying of mineral- oil based oils	MOSH/MOAH	- Used with dusting bulk goods that are food raw materials such as soya beans, grains, rape seeds and other oil seeds. - Alternatively use mineral oil-free dust control agents based on vegetable oils. - For dusting food with flours or powders, only use dust control agents on a vegetable oil basis or substances according to Regulation (EC) No 1333/2008.
Pesticide formulations	Use of pesticides based on paraffin oil	MOSH/MOAH MOSH analogues (MORE)	Use and presence as MOSH analogue within the area of vegetable raw materials possible.
Release agent	Hard paraffin or microcrystalline waxes	MOSH analogues (PAO, MORE)	- Used with e.g. confectionery, fruits. - Is harmless when used as approved; however, relevant to analysis as MOSH analogues. - Where necessary, use alternative waxes such as carnauba wax or beeswax, which are also relevant as MOSH analogues in analysis.



— Animal drug components (by-products in vaccines)

03. Sources de contamination

Boîte à outils : Additifs – Auxiliaires technologiques



— Microcrystalline waxes/hard paraffins	E 905
— Carnauba wax	E 903
— Candelilla wax	E 902
— Beeswax	E 901
— Siloxane	E 900
— Oxidised polyethylene wax	E 914
— Hydrogenated poly-1-decene	E 907