The European voice of the
adhesive and **sealant industry**

SAFE ADHESIVES FOR SAFE FOOD

FEICA guidance and recommendations to the industry

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FEICA Guidance – MOH in Packaging Adhesives

Essential Chapters

- Potential Health Issues
- Testing for mineral oil hydrocarbons – aspects to consider for Hotmelts
- FEICAs recommendations for the adhesive industry when food contact is expected
- FEICA recommendations to the Downstream User

Potential Health Issues

MOSH / MOAH and PAH - Differentiation

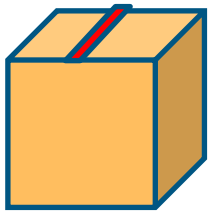
- EFSA has stated that **MOSH** has not been directly associated with adverse health consequences.
- EFSA and national recommendation focus on **MOAH**
- Within the MOAH fraction the health concern comes from polycyclic aromatic hydrocarbons (PAH), **especially 3-7 ring PAH**
  - **Highly alkylated 1-2 ring systems are not genotoxic and not considered to be carcinogenic** (those are dominant in raw materials intended for food contact and used in packaging adhesives)

Request information on polycyclic aromatic hydrocarbons from your supplier

Testing for Mineral Oil Hydrocarbons

Challenges in testing

- **HPLC GC FID** is the preferred method for MOH testing of food and/or recycled paper,
- Recycled paper/food is directly extracted for this analysis
- Test method is not intended for hotmelt adhesives
- Direct extraction of the adhesive is not appropriate



Only migration tests are capable of simulating the real substance transfer of hotmelts

Any analytical determination should be based on simulants from the migration test

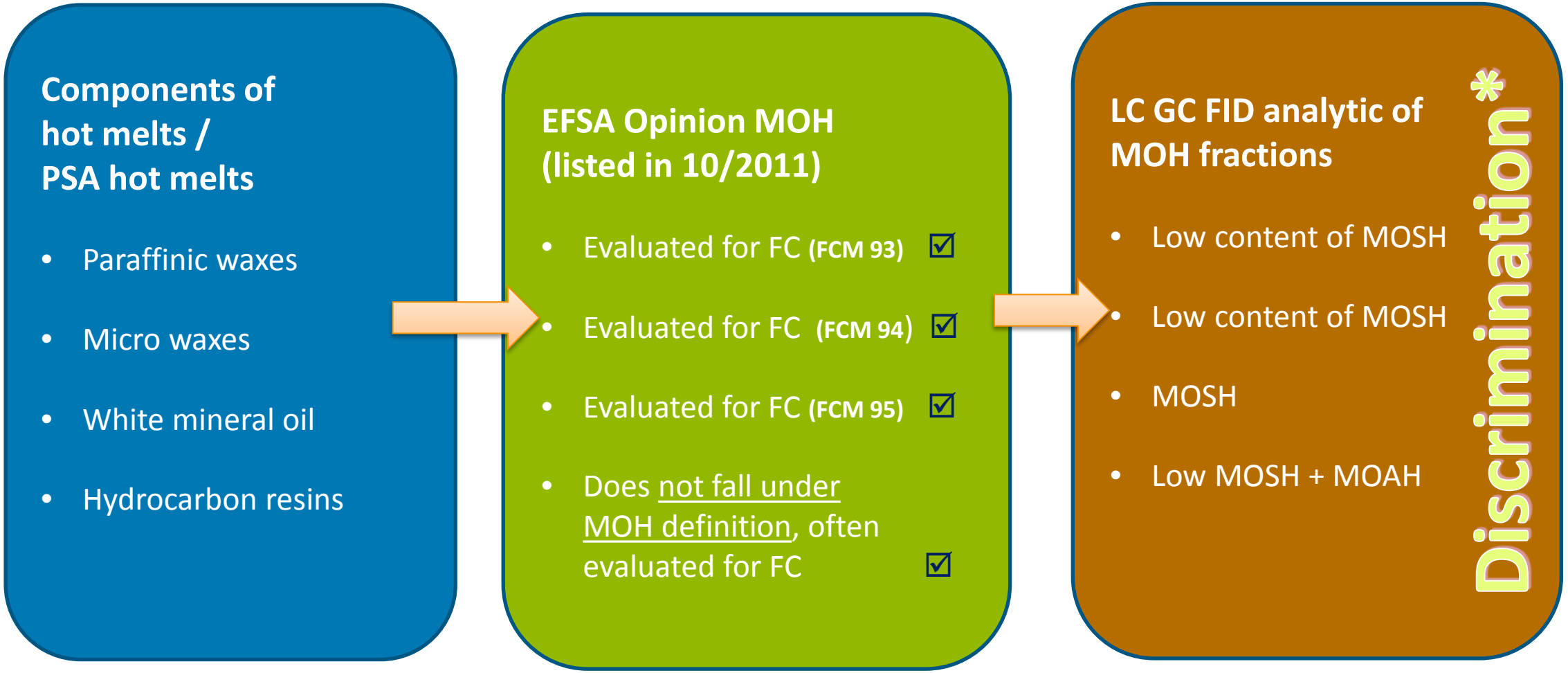
Testing for Mineral Oil Hydrocarbons from hotmelt adhesives

Challenges in testing

- GC-FID determination is NOT capable of resolving the complex substance mixtures into individual compounds,

- **HPLC-GC-FID analysis does not differentiate between substances from mineral oils and non-mineral oil sources, such as oligomers from resins or polyolefins - FALSE POSITIVES**
- **Differentiation might be possible by applying the two dimensional GC method**
- **HPLC-GC-FID can also not differentiate between evaluated and non evaluated MOH** (Even FCM no. 93,94,95 might occur in the MOH fractions when using this approach)

Hotmelt and PSA-Discrimination by Analytic Method



*all single substances are toxicological evaluated

Recommendations for the Adhesive Industry

Principles applicable to adhesive manufacturer

- Make sure, that the supporting documentation from your raw material suppliers is sufficient
- Listing in Unionslist of 10/2011 is of advantage (e.g. FCM no. 93, 94, 95)
- If this is not the case, request further documentation from supplier
  (other compliance information, tox data, carbon number distribution, etc.)
- In case of missing documentation:
  - Make your own risk assessment based on composition
  - Or replace the raw material against an evaluated one

Recommendations for the Adhesive Industry

Principles (continued)

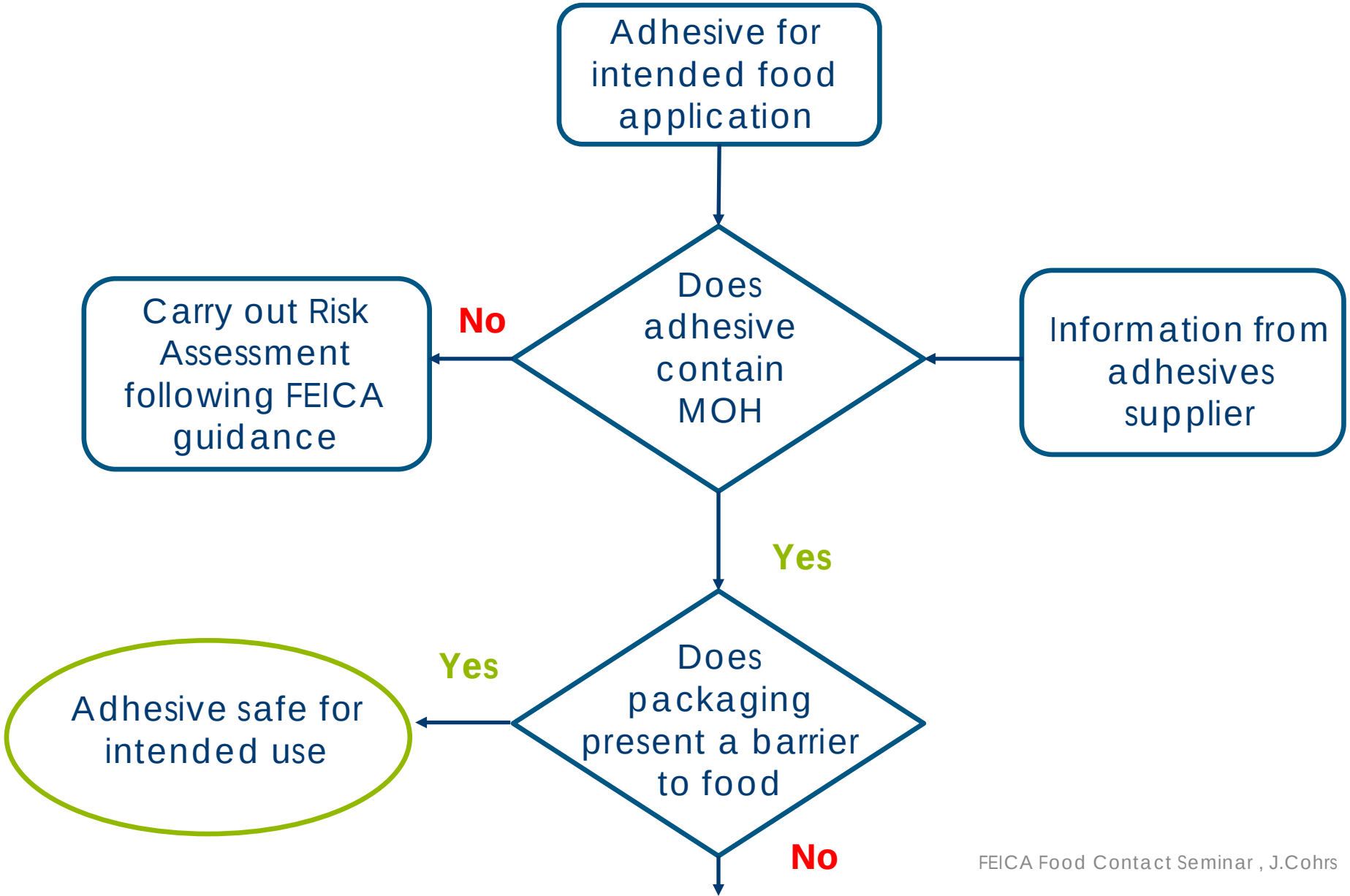
- If none of the above is possible and a risk of migration remains, make sure, that the product will only be used behind a functional barrier (info in FCSD*)

For all cases:

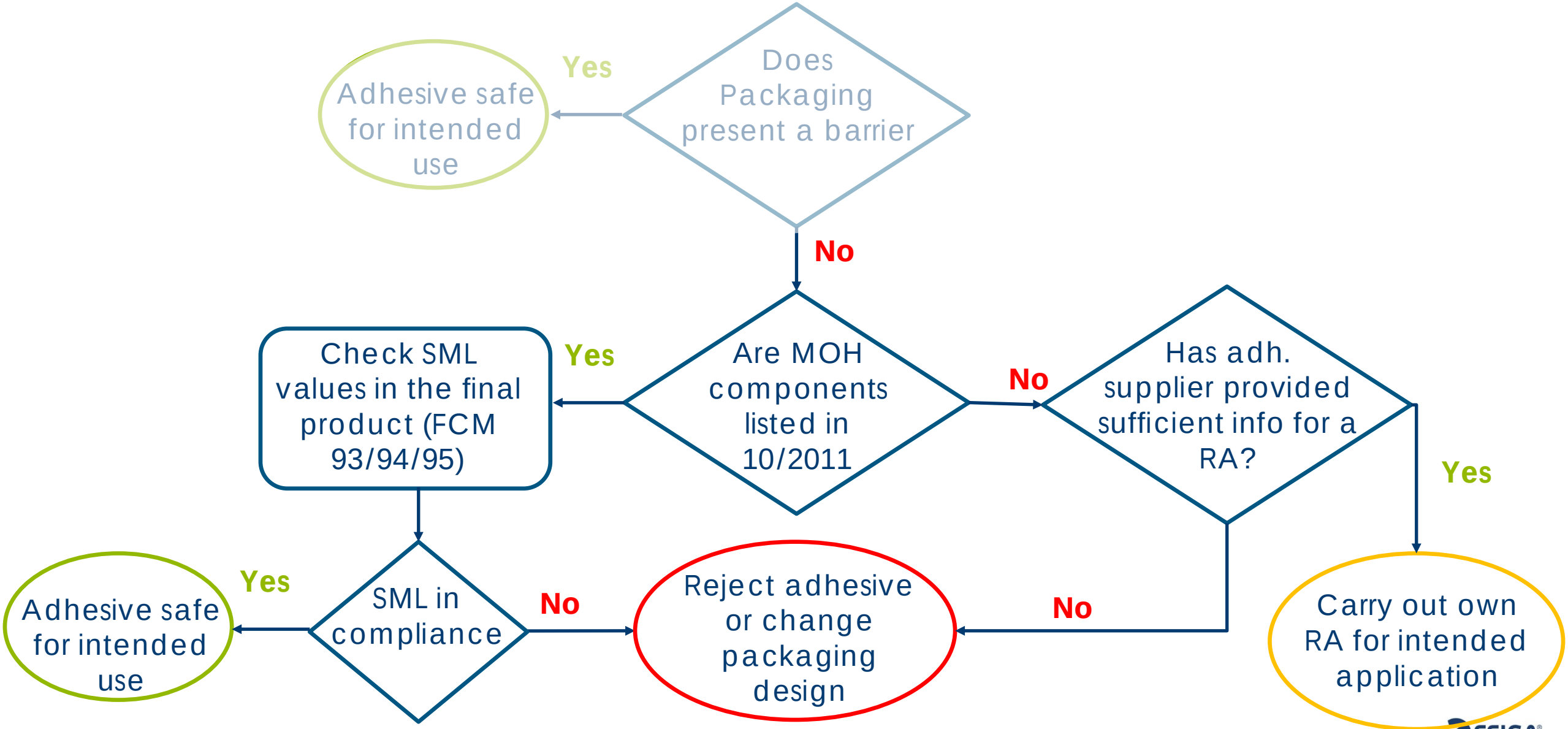
- Provide sufficient information as regards possible MOH migrants from the adhesive in the FCSD (e.g. Paraffinic Wax: SML 0,05 mg/kg)

*FCSD – Food contact Status Declaration

Recommendations to the adhesives using industry



Recommendations to the adhesives using industry



Summary

- MOSH and MOAH definitions from the EFSA are very vague
- Further toxicological evaluation of MOSH and MOAH is needed
- Packaging hotmelts contain substances which might contribute to fractions of the MOSH and MOAH analyses – focus on MOH of concern
- Sample preparation and interpretation of the test results for adhesives can be difficult and need effective communication between adhesives supplier, customer and test laboratory

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Risk for the consumer remains low – due to the use of "toxicological evaluated substances", small contact area, migration via gaseous phase, barrier approach etc.

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Outlook

FEICA is launching a TESTING Project to test MOH Migration from hotmelts

Objectives

- Check suitability of the HPLC GC-FID test method for testing migration from hotmelts.
  Does the method allow a risk assessment due to simulated migration into food and food simulants?

- Another analytic approach will be applied to differentiate hotmelt resin MOH from the mineral oil based MOH -> two dimensional GC (GC GC)

- Several companies have already carried out in-house tests – now FEICA would like to gain own knowledge to assist stakeholders in testing and interpreting MOH migration from hotmelts

FEICA activities and commitments in the packaging sector

FEICA is committed to keep close ties to downstream users and their associations

- FEICA is a member of the cross Industry Task Force on Food Contact Materials
- FEICA has attended several Downstream User Association meetings
- FEICA tries to include Downstream User specific information into its guidance papers

Several existing FEICA guidance papers

- Guidance for a food contact status declaration for adhesives (2014)
- Guidance for Good Manufacturing Practise (GMP) (2015)
- Guidance on migration testing of adhesives intended for food contact material (2016)
- Guidance related to the food contact status of adhesives and mineral oil hydrocarbons (2017)

- FEICA website : http://www.feica.eu/our-priorities/key-projects/food-contact.aspx