



The European voice of the
adhesive and sealant industry

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SAFE ADHESIVES FOR SAFE FOOD



Mineral oil hydrocarbons in adhesives

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Agenda

- Hydrocarbons as Food Contact Materials
- FEICA's Recommendation for Adhesive Manufacturers
- Position Paper / Guidances from Associations
- National Regulations
- Adhesives as possible Contaminants in Recycling Paper

FEICA Guidance



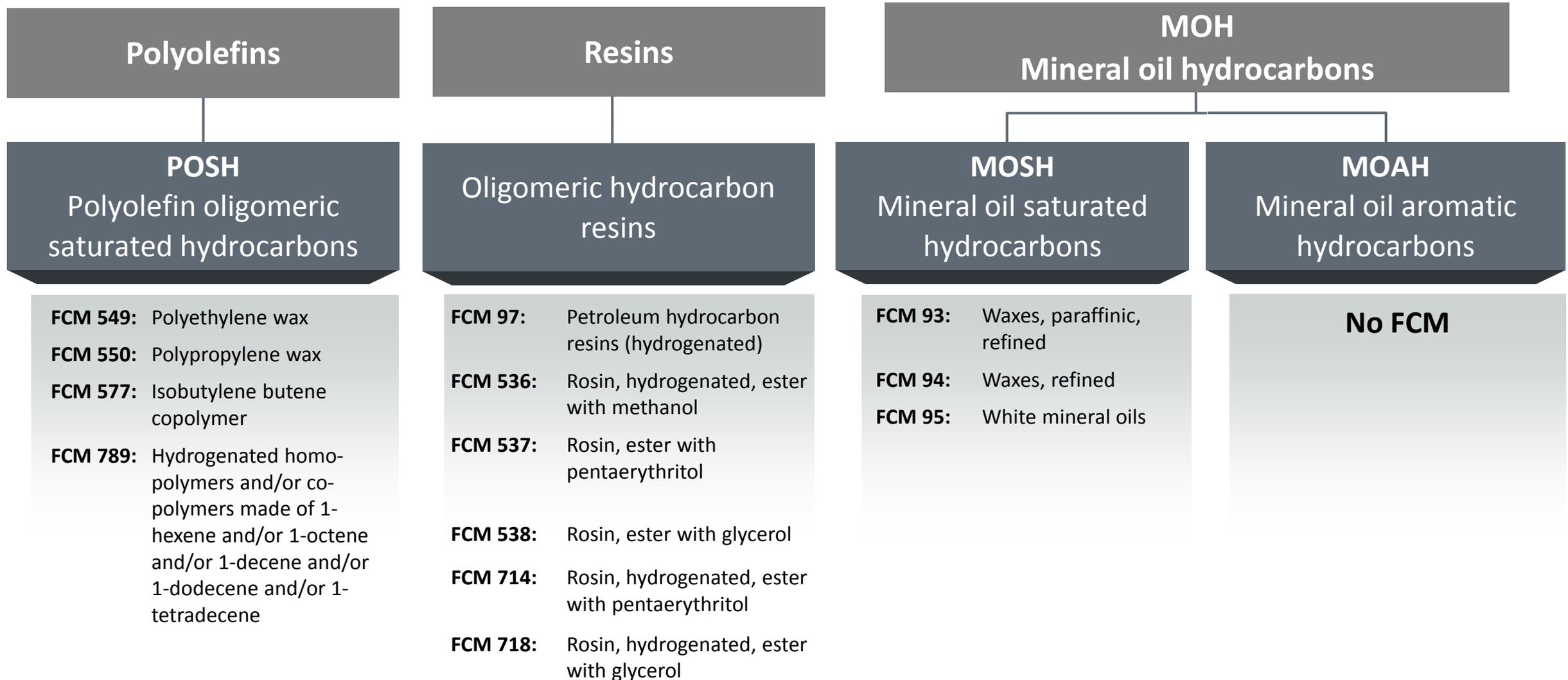
FEICA GUIDANCE

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

Brussels, 05/05/2017

FEICA guidance on evaluating the food contact status for adhesives containing mineral oil hydrocarbons

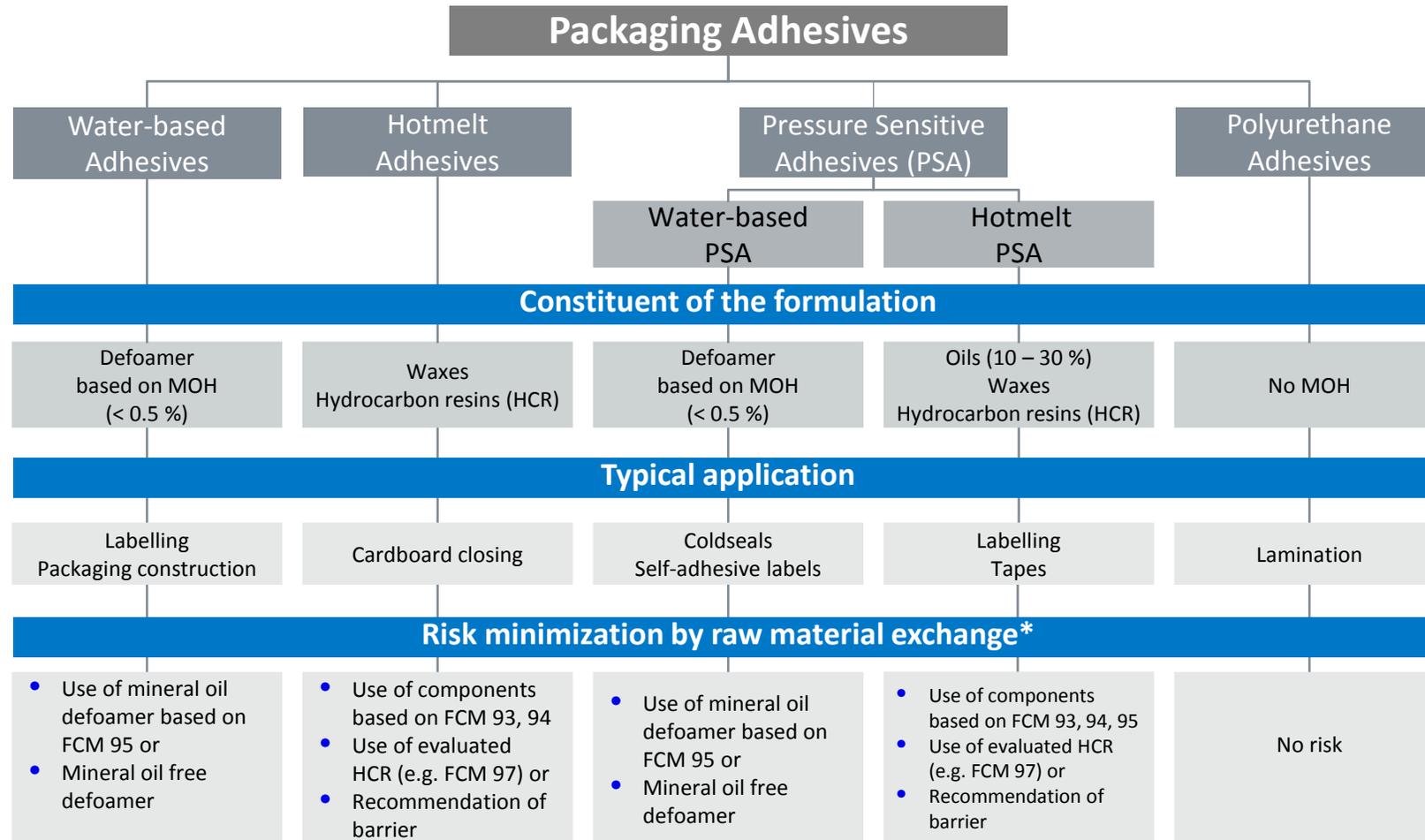
Hydrocarbons as Food Contact Materials



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FEICA's Recommendation for Adhesive Manufacturer



* alternatively perform a risk assessment according to Article 3 of the Framework Regulation (EC) No 1935/2004

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National Regulations



France

Opinion of the French Agency for Food, Environmental and Occupational Health & Safety (ANSES)

Published 8th March 2017

- Subject: Migration of mineral oil compounds into food from recycled paper and cardboard packaging
- Focus on hydrocarbons with a chain length below 28 carbons
- Sources for MOHs in paper and cardboard: mainly offset printing inks, but also hotmelt adhesives
- Recommendation:
 - Examining the feasibility of using printing inks, glues, additives and processing aids free from MOAHs
 - Conducting studies to identify the step in the recycling process that leads to the introduction of MOAHs in recycled paper and cardboard
 - Using effective barriers to limit the migration of MOAHs from packaging into foods

National Regulations



Germany

■ “Mineral oil Regulation”

= 22. Regulation amending the Consumer Goods Ordinance (Bedarfsgegenstände-verordnung)

1. Draft: 2nd May 2011
 2. Draft: 16th May 2013
 3. Draft: 24th July 2014
 4. Draft: 7th May 2017
- Subject: consumer goods for food based on paper and cardboard containing recycled paper

Draft “Mineral oil Regulation”

- Functional barrier obligatory for food packaging from recycled paper and board
- No restriction for MOSH
- Restriction for MOAH: No transfer into food
Detection limit: 0.5 mg MOAH / kg foodstuff for C16 – C35 for all foodstuffs
- Exceptions:
 - Food producer renounce a functional barrier
 - MOAH content in packaging below DL
 - No transfer of MOAH assignable (e.g. salt, frozen food, short contact with dry food)

National Regulations



Switzerland

Swiss Ordinance SR 817.023.21 (Bedarfsgegenständeverordnung)

Current version in force since 1st May 2017

Chapter 9: Commodities of paper and paperboard, Article 27

1 Bedarfsgegenstände aus Papier und Karton müssen so beschaffen sein, dass sich Lebensmittel einwandfrei davon trennen lassen.

2 Altpapier sowie Recyclingpapier und -karton dürfen nicht als Umhüllungs- oder Packmaterial für Lebensmittel verwendet werden, wenn es mit diesen in Berührung kommt; ausgenommen sind Eier, reines und trockenes Kochsalz sowie nicht saftabgebendes Obst und Gemüse, das geschält werden muss. Nicht als Altpapier gelten fabrikneue Produktionsabfälle oder -ausschüsse.

3 Abweichend von Absatz 2 kann eine Schicht aus recyceltem Papier oder Karton verwendet werden, falls diese nicht in Berührung mit den Lebensmitteln kommt, sofern das fertige Erzeugnis durch geeignete Massnahmen (zum Beispiel eine Sperrschicht) den Anforderungen von Artikel 49 LGV entspricht.

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Contribution of Different Paper Grades to the Recycling Process



Adhesives as Possible Contaminants in Recycling Paper

Corrugated paper and board:

- adhesive to produce corrugated paper: water based products
- adhesive used to close boxes: EVA or PO hotmelts
- estimated consumption: 1:100 to 1:500 g hotmelt / g paper or board



Cardboard packaging:

- adhesive used for side seam: water based products
- adhesive used to close folding boxes: EVA or PO hotmelts
- estimated consumption: 1:100 to 1:500 g hotmelt / g paper or board



Adhesives as Possible Contaminants in Recycling Paper

Books:

- adhesive used for short-lived products (softcover, phone books):
EVA hotmelts, dispersions
- adhesive used for long-lived products (hardcover):
PU products
- estimated consumption:
spine glue: 1:100 g hotmelt / g paper (majority)
side glue: 0.1-0.2 g hotmelt / book (minority)

Newspapers:

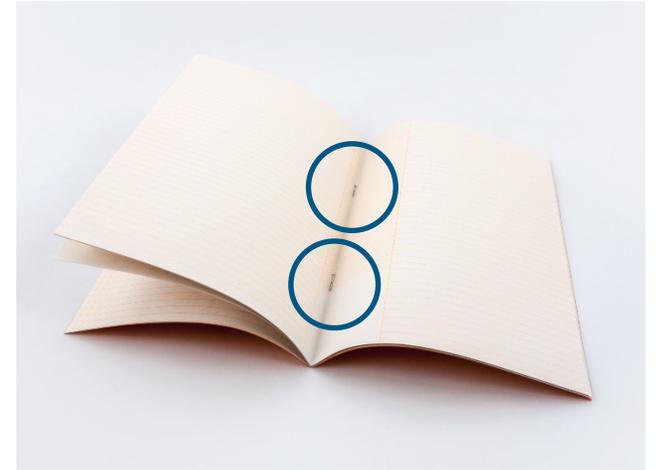
- usually no adhesive used



Adhesives as Possible Contaminants in Recycling Paper

Magazines:

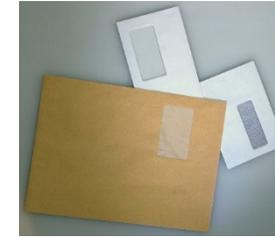
- clip-bound magazines:
 - usually no adhesive used, only for sticking cards
 - adhesive used for sticking cards: PSA hotmelts
 - estimated consumption: 0.1 g hotmelt / card
- magazines with spine:
 - adhesive used for spine: EVA hotmelts
 - estimated consumption fo spine: 1:100 g hotmelt / g paper
 - adhesive used for sticking cards: PSA hotmelts
 - estimated consumption: 0.1 g hotmelt / card



Adhesives as Possible Contaminants in Recycling Paper

Office paper:

- printer paper: no adhesive used
- adhesive used for writing pads: EVA hotmelts
- Adhesive used for envelopes: EVA hotmelts, dispersions, PSA
- estimated overall consumption: 1:1000 g hotmelt / g paper



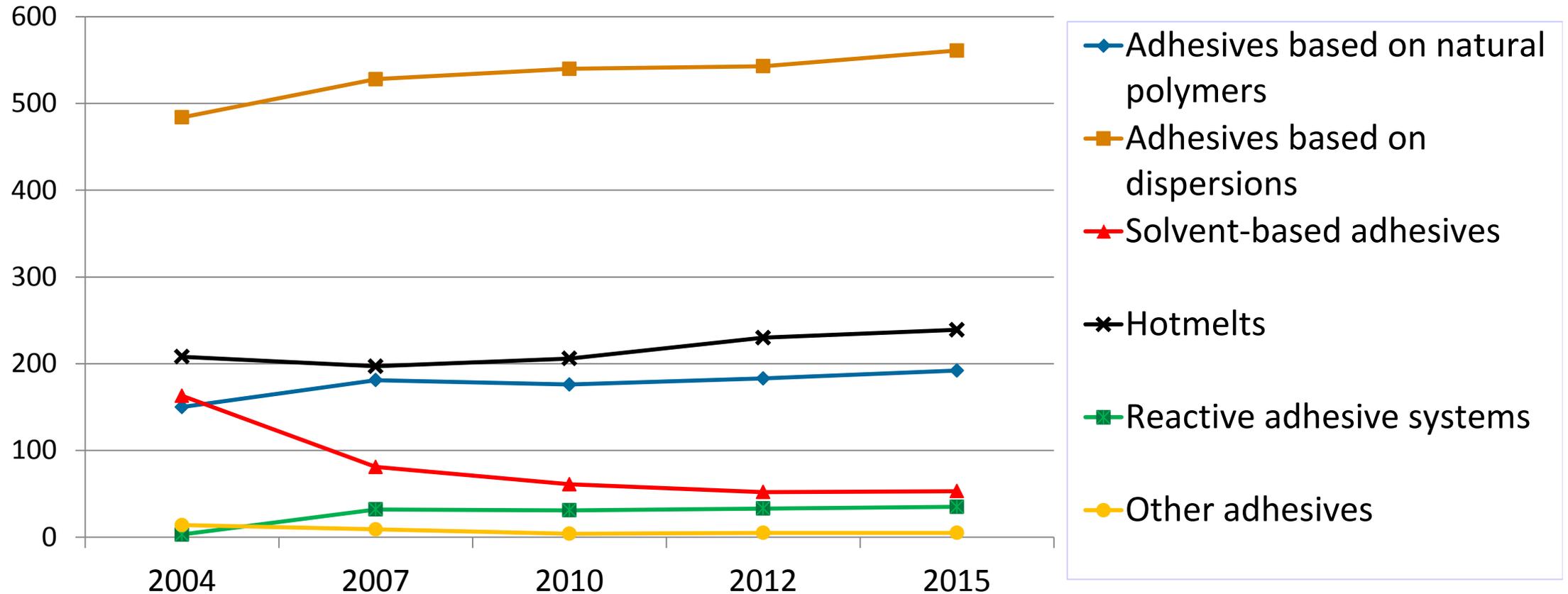
Kraft sacks:

- adhesive used for side seam: water based products
- adhesive used for closing sacks: EVA or PO hotmelts
- estimated consumption: 1:100 to 1:500 g hotmelt / g paper



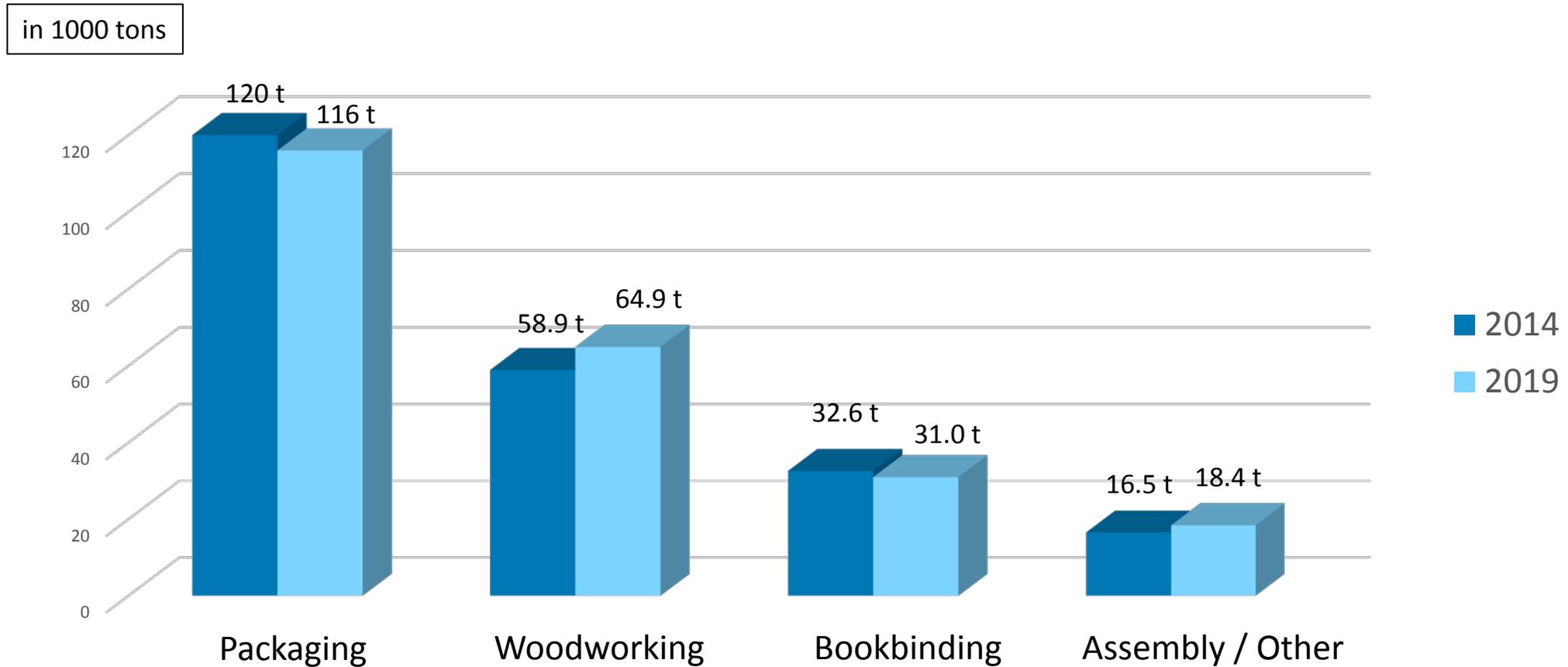
Adhesive Consumption for Paper and Packaging in Western Europe

in 1000 tons



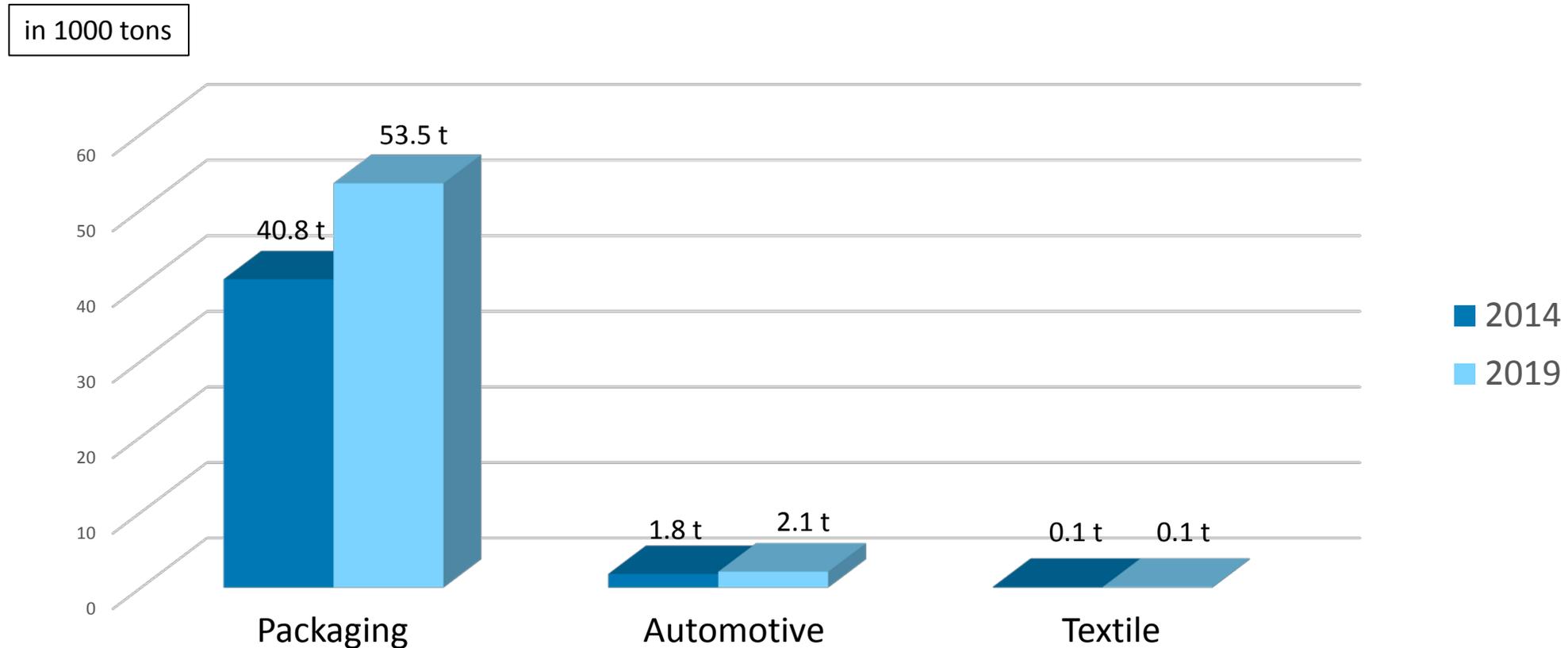
Source: Industriebverband Klebstoffe e. V.

EVA Hotmelt Consumption in Europe by End Use



Source: Kusumgar, Nerlfi & Growney, The global adhesives industry 2014-2019

Polyolefin Hotmelt Consumption in Europe by End Use



Source: Kusumgar, Nerlfi & Growney, The global adhesives industry 2014-2019

Hotmelt Adhesives as Possible Contaminants in Recycling Paper

Hotmelt adhesives in Europe 2014:

- EVA:
 - 120,000 tons Packaging
 - 32,600 tons Bookbinding
 - 16,500 tons Assembly / Other
 - Polyolefins:
 - 40,800 tons Packaging
- Σ: 209,900 tons Hotmelt adhesives

Paper and board in Europe 2014 (CEPI):

consumed paper and board: 80 Mio. tons

recycled paper and board: 57 Mio. tons (71.4 %)

209,900 tons hotmelts : 80 Mio. tons paper and board
= 0.26 g hotmelt : 100 g paper and board

Please note that this is an estimation. Further sorting may be done during the recycling process – i.e. mainly cartons will be used to produce new cartons, in which case the calculation needs to be adapted

Hotmelts in the Paper Recycling Process

- Removability of adhesives in the paper recycling process is very important for the use of recovered paper
- INGEDE (International Association of the Deinking Industry) has developed a method for testing (INGEDE Method 12)
<http://www.ingede.de/ingindx/methods/meth-e.html>
- ERPC (European Recovered Paper Council) has published a scorecard for the removability of adhesive applications in printed products, classifying the adhesives in a range of – 20 to + 100
<http://www.paperforrecycling.eu/publications/>
- Adhesives producers are supporting the recyclability by providing suitable adhesives for all applications
- PSA products remain critical for the recycling process, not all of them can easily be separated

Summary

- Different hydrocarbons might contribute to the MOH fraction, also listed substances, evaluated for food contact.
- FEICA provides a clear recommendation for its members how to choose the right raw materials for safe adhesives.
- National regulations deal with the content of MOH in recycled paper and board.
- Adhesives might contribute to the contamination of recycling paper, but the possible amount is very low.
- Test methods (INGEDE Method 12) are available to check the removability of the hotmelt adhesives during the paper recycling process.
- Adhesive suppliers are able to provide hotmelt adhesives suitable for the recycling process for all applications.

Thank you for your attention!

Dr. Monika Toenniessen, Henkel AG & Co. KGaA

