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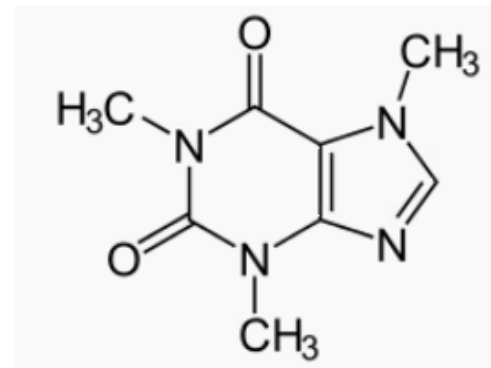
**Enforcing migration
limits: Analytical
chemistry challenges and
future developments**

Enforcing migration limits

- EASY
 - **Something** gets from the food contact material into the food
 - **Measure it**
 - **Check if limit is exceeded**
 - If NO: done
 - If YES: take from the market
- Or is it?

«Something» Chemical Substance

- Reactions
 - **Petrol + oxygen → water + carbon dioxide**
- Toxicity
 - **Hazard**
 - Acute (cyanide)
 - Chronic (smoking)
 - **Dose**
 - How much is too much?
 - **Risk**
 - Exposure x hazard



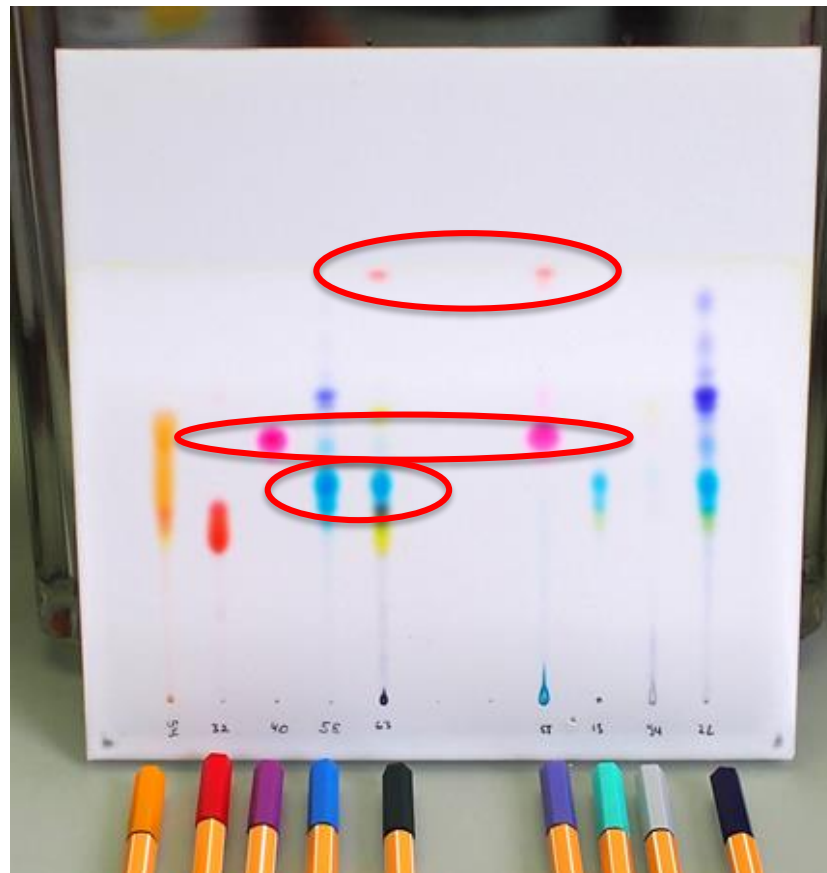
FCM are an underestimated source of food contamination

| | Pesticides | FCMs |
|-----------------------------|------------|------------------|
| Number of Substances | ~1500 | Possibly 100,000 |
| Level of food contamination | µg/kg | mg/kg |
| Toxicological evaluation | yes | mostly no |

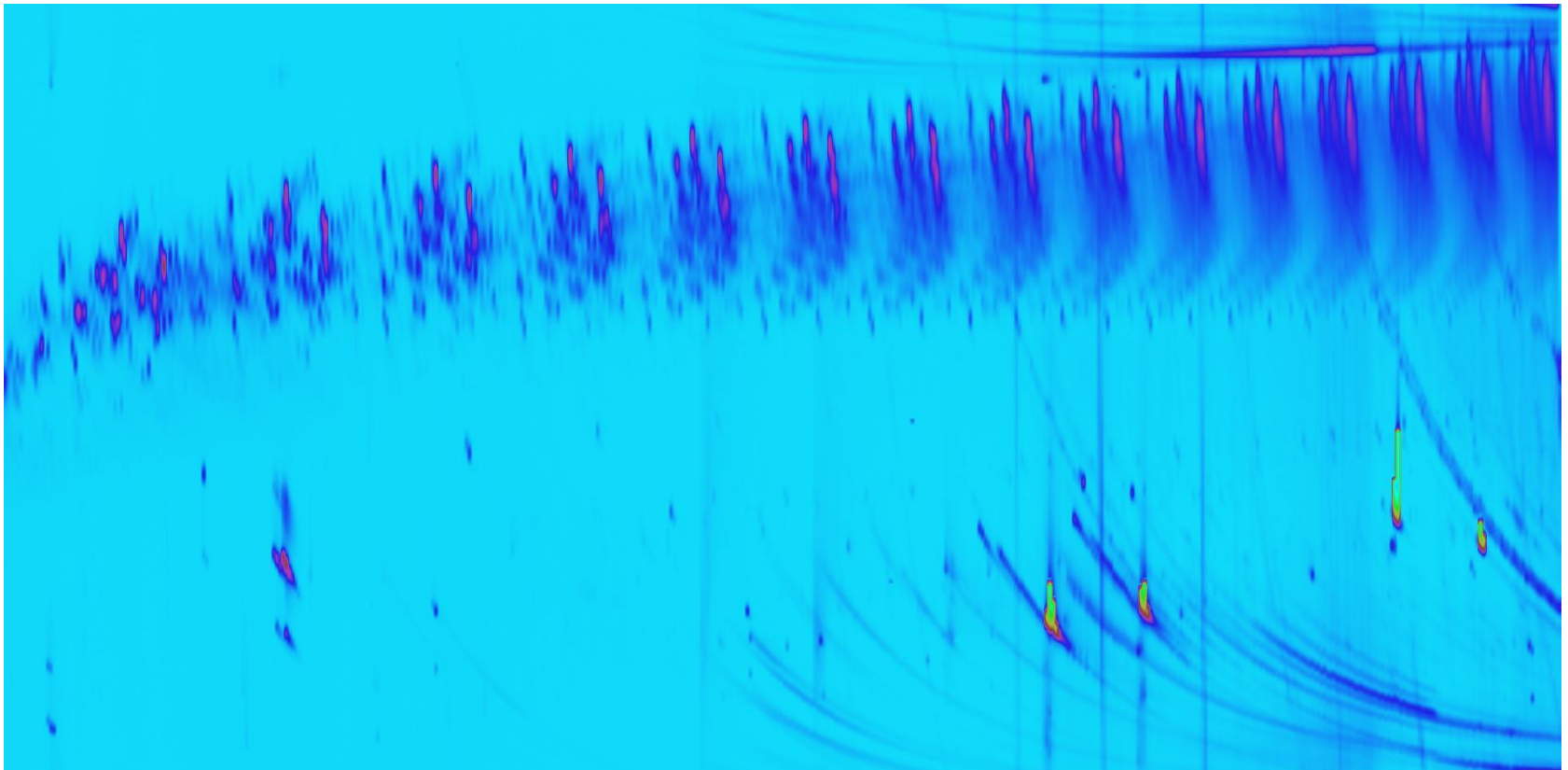
«Limit» where is it?

- Legislative lists with migration limits for specific substances
- Art. 3 of framework regulation 1935/2004
 - **Limit where health may be endangered**

«Analyse it» analytical chemistry



Analysis of a polyolefin (common plastic) extract



What to do with the data

- Quantify migration of substances that are regulated in 10/2011
 - **List has ~900 substances but standards available for only ~550**
- Quantify migration of other substances (NIAS)
 - **Risk assessment not possible in many cases as identity unknown**

Future developments

- Use of fewer substances
- Control of compliance work
- Bioassays for mixture assessments
- List of evaluated NIAS
- FCM approval process