Illegal treatment of Tuna: from canning grade to Sushi grade
Tuna's normal ageing process

- Fresh tuna has a red pigmentation
- Over time, pigmentation turns dark red and finally brown
- Histamine levels also increase (Freshness indicator)

Illegal treatment

- Looks red and fresh! ... but it's not!
- Injection or immersion in the nitrites solution to change the brown colour
- Use of nitrites solution (e.g. vegetable extracts, salt etc...)

Health and Food Safety
3 Main violations of EU Food Law

**Inappropriate freezing to be sold as fresh Tuna**

Regulation (EC) n° 853/2004

Any fishery product shall be frozen below -18°C.

*Exceptionally, for canning industry,*
whole tuna initially is tolerated to be frozen in brine at -9°C

**Change of colour**

Additives intended to change tuna's colour are not authorised, and the use of such food additives would mislead the consumer

Regulation (EC) 1333/2008 art 6.1

**Treatment of the fish**

Treatment of unprocessed fish with nitrites/nitrates (or additives containing high level of nitrites) and/or carbon monoxide is not authorised according to Regulation (EC) 1333/2008
There are even special guides for this illegal practice (openly displayed in Tuna establishments)
Economic gain

Tuna Price Balance

Fresh
12-15€/Kg

for Canning
2-3€/Kg

Calculation
According to the Industry, approximately 25,000 tons of Tuna undergone this treatment in 2016.

Economic gain per 1kg is ~8-10€

Potential gain 200 Million € per year
# Scombroid Syndrome* (fresh Tuna) reported in Rasff

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017 (mostly first Half of the year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of notifications (Histamine in Tuna)</td>
<td>18</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>Number of people with scombroid syndrome</td>
<td>59</td>
<td>24</td>
<td>165</td>
</tr>
</tbody>
</table>

Scombroid Syndrome notified in Rasff does not give an exhaustive picture of all cases

High underreporting at national level (hospital/doctors)

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*Scombroid Syndrome: Allergic reaction

- Poisoning may cause respiratory problems
- In rare cases it may result in Death
**Timeline and Food Fraud Criteria**

**Industry whistleblows** on fraudulent practices in mainly ES, FR, DE, IT

- **July 2016**

**SANTE** carries out data analysis (RASFF) and activates the EU Food Fraud Network (FFN)

- **July -October 2016**

**SANTE reaction:**
- Alert to Member States (PAFF*)
- Warnings to Industry
- Presentation at SeaFood Fair

- **Nov 2016 - April 2017**

**No initial findings** by MS authorities (except in FR)

- **Nov 2016 - April 2017**

**Special Training** organised by Industry for Competent Authorities

- **June/July 2017**

**ES Authorities inspection** (SANTE as observer)

- **September 2017**

**Main conclusion:**
- Widespread illegal practices

- **May 2017**

**Tips for inspection**

- **June/July 2017**

**Whistleblowers and FFN** still reporting on the illegal practices

- **~80% of EU fresh tuna market**

**DG SANTE AUDIT** to ES, FR, DE, IT

- **Oct 2017/2018**

**1. Violation of EU Food Law**
- 1. Tuna frozen in brine **sold as fresh instead of being canned**
- 2. **Change of colour**
- 3. Treatment of the fish (**unauthorised additives**)

**2. Intention**
- Intentional use of Nitrites (and other additives) to **enhance tuna's colour**
- **Industry warned several times by EC and MS to stop this practice**

**3. Economic Gain**
- Potentially **200 million € /year**

**4. Customer Deception**
- Poor quality tuna bought as high quality
- **Public health issues:**
  1. increased risk of high level of **histamine (allergic syndrom)**
  2. Nitrites may lead to formation of **nitrosamines (carcinogenic)**
**Tips for inspection/investigation**

1. **Change of destination (from cannery to fresh)**
   - If tuna frozen in brine and destined to cannery industry gets out with red colour.
   - The change of colour indicates that an illegal process has taken place.

2. **Unsuitable vessel for preserving fresh tuna**
   - Trace Backwards the Tuna
     - Is the red tuna from a vessel equipped with ultra low freezing system (-18°C)?

3. **Fish industries buying nitrites**
   - Trace Forward the "nitrites"
     - To which fish industries were the nitrites solutions sold?