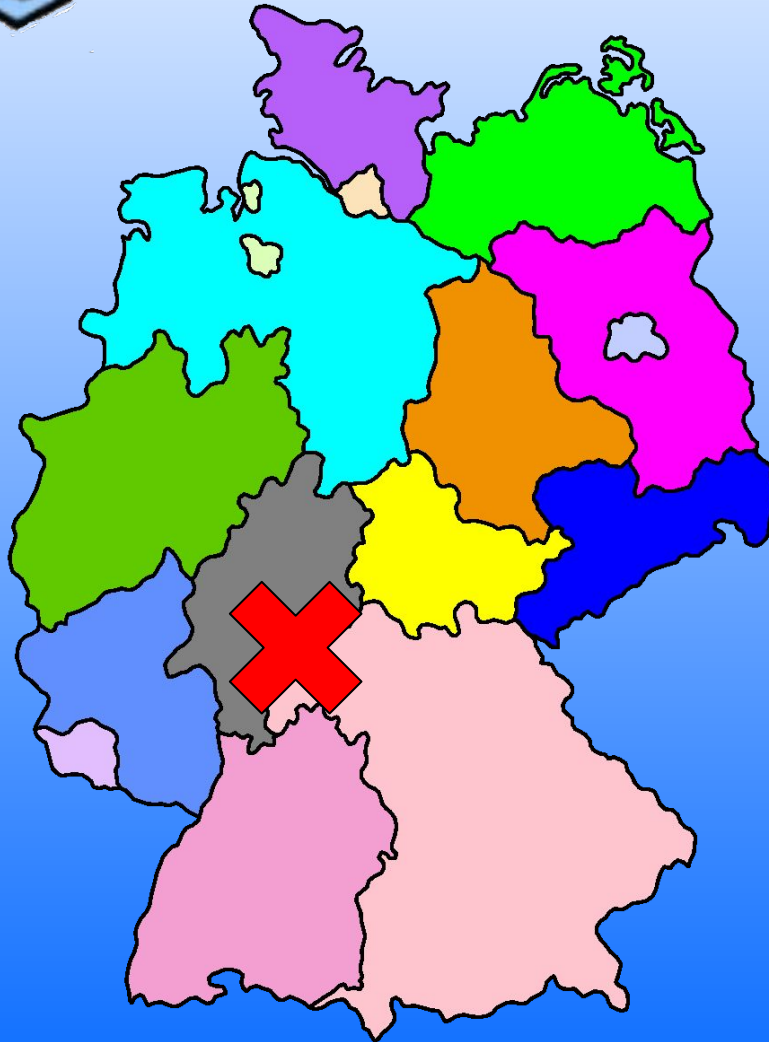




**Dr. Bilger Umweltconsulting GmbH**

**Sodium - Technology  
for  
POP`S and PCB disposal  
February 2023 in Zaragoza**

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- **product development on base of alkalimetal**
- **consulting for professional and safe handling of sodium**
- **environmental consulting for application of sodium**
- **development of procedures for application of sodium**



## **references:**

- **more than 30 years of experience in application of sodium and derivatives**

**several patents for application of sodium**

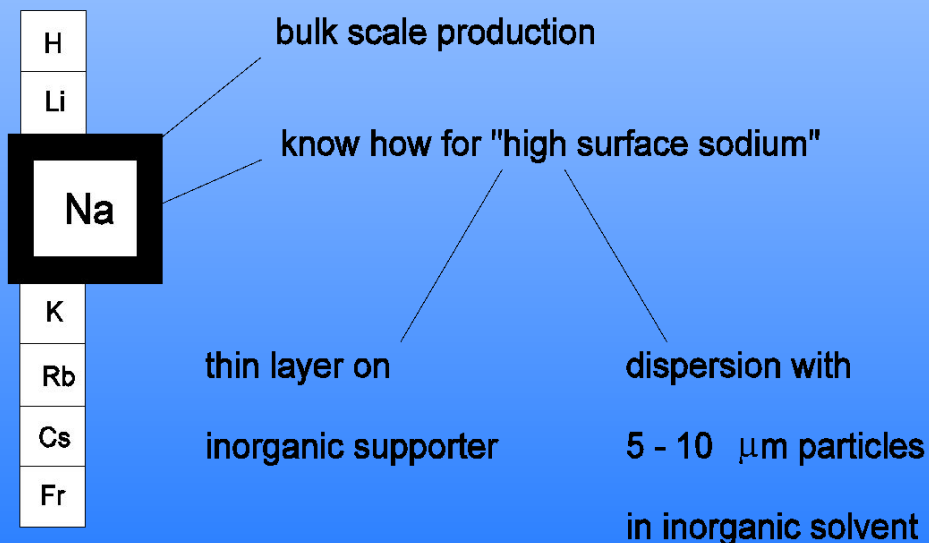
**set up of plants for decontamination  
of transformer oil**

**optimisation of production sites for  
fused salt electrolysis in India and China**



# Why Sodium ?

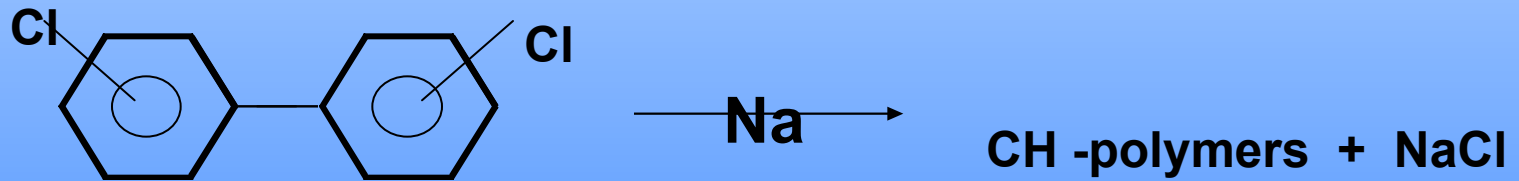
## Sodium-Technology / high surface Sodium



- commercially available non expensive chemical
- handling of Sodium is safe regarding basic precautions
- reaction products easy to handle



# chemical principle





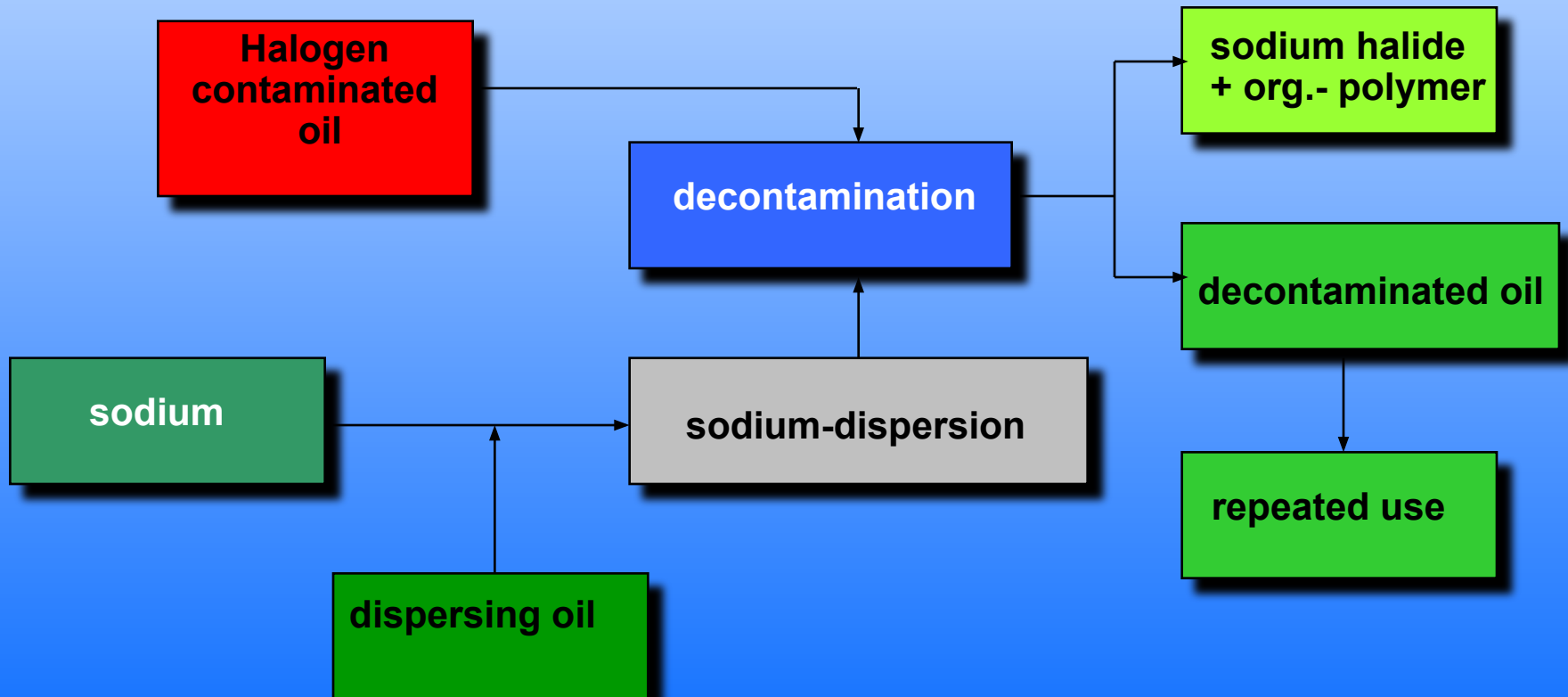
## **Advantages of the Sodium-Technology**

- **low investment costs**
- **inexpensive reagents**
- **no hazardous gaseous products released**
- **mobile detoxification units possible**
- **very high yield of decontaminated industrial oils**



# Process technology

sodium - dispersion- process for the  
decontamination of oil









## Application example Hamburg-Georgswerder

compound	before	after treatment
PCB	80 ppm	< (0.1) ppm
PCDD	17 ppm	< (0.0002) ppm
PCDF	8 ppm	< (0.0002) ppm
HCH	2000 ppm	< (0.1) ppm
Chlorobenzene	30.000 ppm	< (0.1) ppm
Chlorophenole	900 ppm	< (0.1) ppm



# Operation Unit in Tokyo



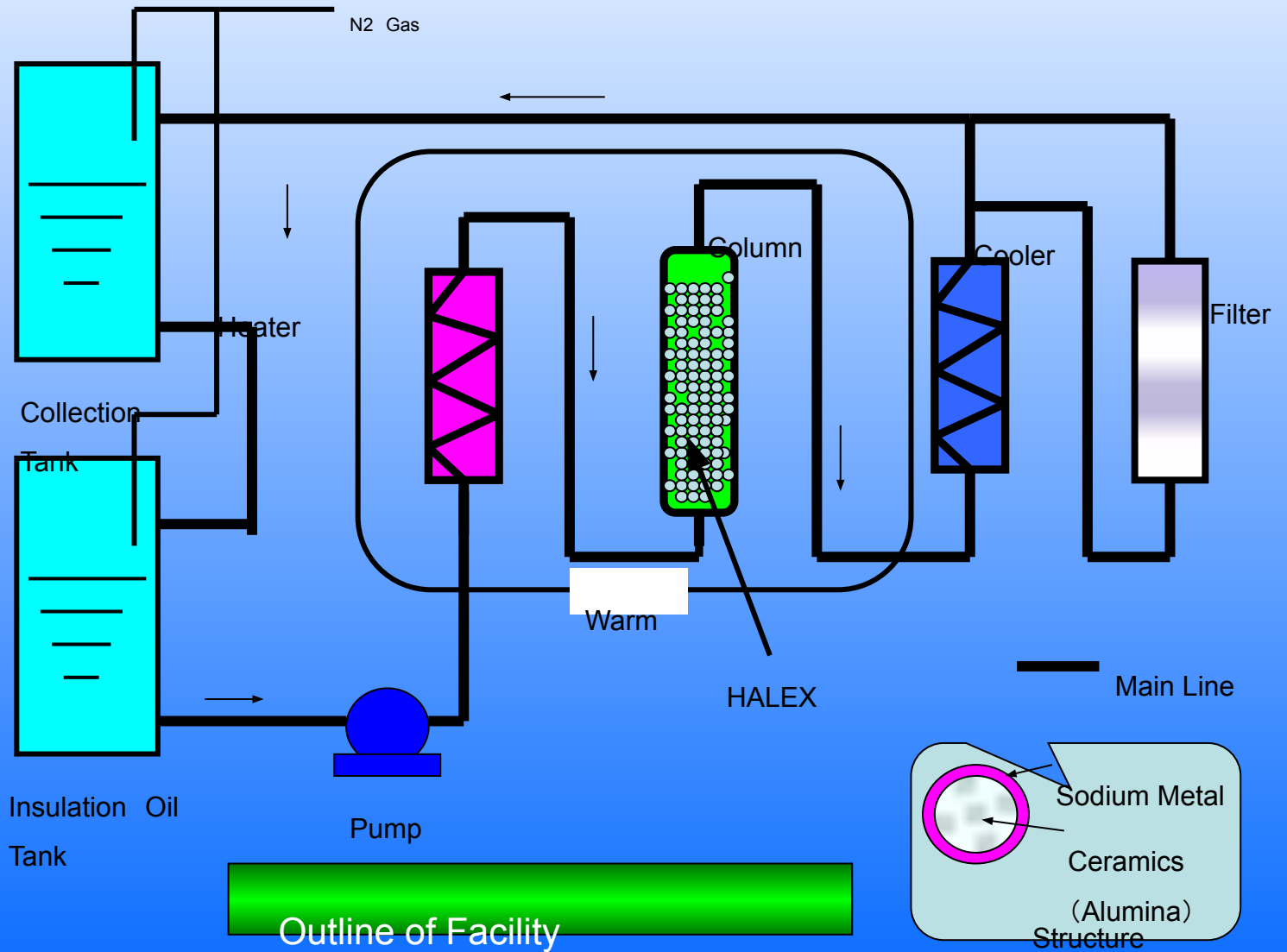
HALEX under argon



Even the very low Japanese limits of  $< 0.5$  ppm can be guaranteed.



## Easy Treatment of Insulation Oil with Low Concentration PCB (Treatment Plant)







# Medellin, Colombia



storage tanks for contaminated and clean oil



Dispersing and reaction unit

since 2015/2016 transformer oil from (today) from 10 of the 32 “Departamentos” treated

until November 2022 a total of 1227 equipments (mainly distribution transformers

175,000 litres of PCB contaminated dielectric mineral oil.

decontaminated oils used as diluents for hydraulic oil bases, lubricants and greases.



# Johannisburg, South Africa



Sodium-Dispersing Unit



Addition of Sodium bricks

In South Africa in 2015 a unit was set up for large scale production of sodium dispersion (storage tank of 5,000 ltr.and storage of dispersion.

Application: desulfuration of oil deriving from pyrolysis of tyres.



## Conclusions and Challenge for the Future

“Younger” people shall continue to apply the Sodium Technology  
and share the unique opportunity for sustainable action

Target: improvement of our environment –

For Us – Our children and Further Generations.

German chancellor Olaf Scholz created the political word: **“Zeitenwende”**

translate: **“wind of change”** (song from “Scorpions”)

meaning for politicians and scientists as well

**PAST:** hear – wait – further investigate

**FUTURE:** listen – decide – act



**Dr. Bilger Umweltconsulting GmbH**

**Thank you for your attention  
and peace for all of us**