

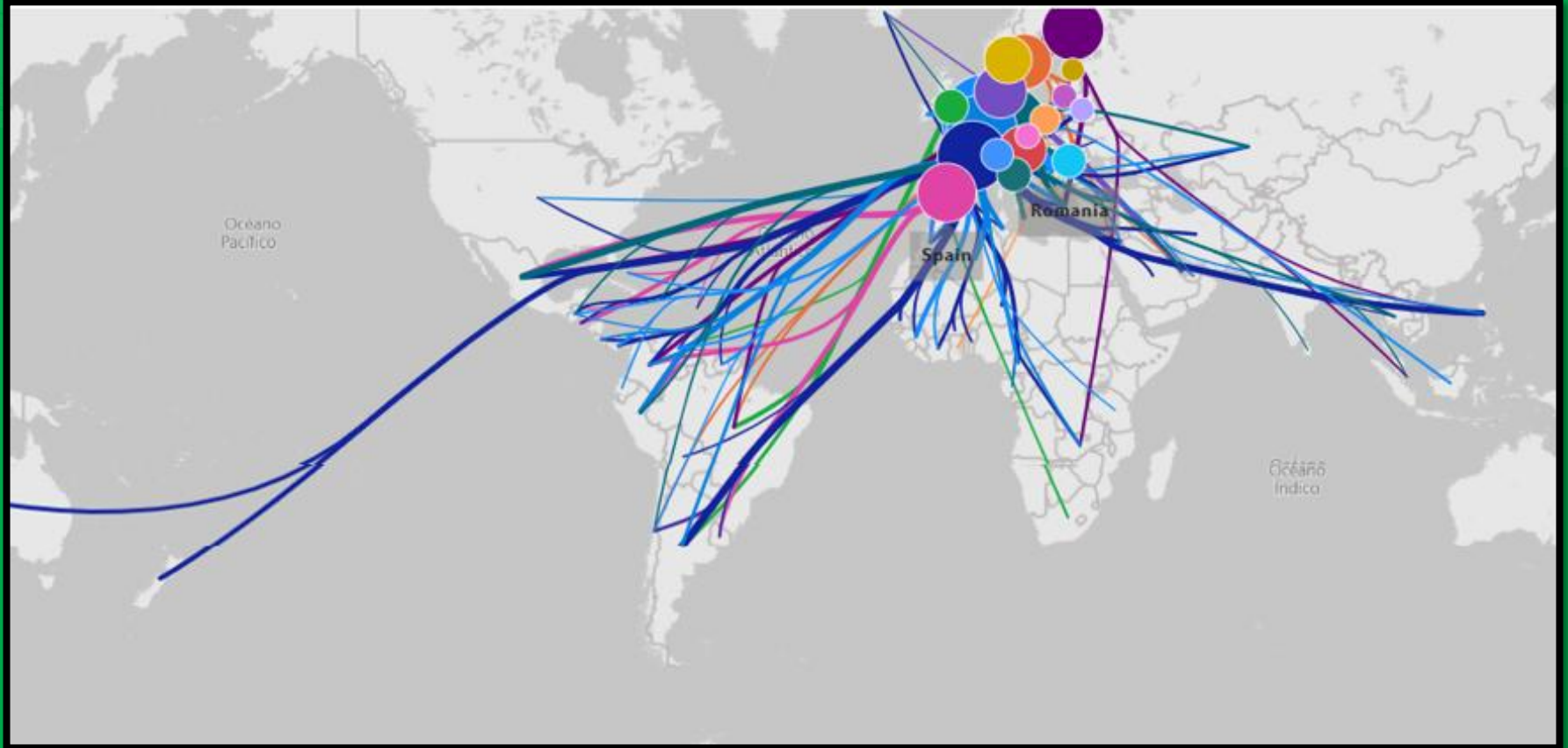
# MARKET STUDY OF PCB ELIMINATION AND DISPOSAL FACILITIES

*Analysis of European Treatment Capacities and Technologies*

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# Inception Workshop for the Global Elimination Program for PCBs (GEP-PCB)

27 to 29 January 2026, Abidjan



# PRESENTATION OVERVIEW

- ✓ Survey Methodology and Response Analysis
- ✓ Geographic Distribution of Facilities across Europe
- ✓ Treatment Capacity Assessment by Technology Type
- ✓ Regulatory Compliance and Certification Status
- ✓ Service Coverage and Cross-Border Capabilities
- ✓ Technology Analysis: Thermal vs Non-Thermal Solutions
- ✓ Pricing Structure and Cost Considerations
- ✓ Key Findings and Market Dynamics
- ✓ Strategic Recommendations for Stakeholders

# SURVEY METHODOLOGY

## Survey Scope

- Targeted Facilities : 34  
(Europe 29 and Africa 5)
- Contacted Facilities: 32  
(Europe 27)
- Response Rate: 44%
- Responses Received: 15
- Countries Covered: 12 (9 Europe)

## Data Collected

- Treatment capacity and technology types
- Licensing and regulatory compliance
- Service areas and waste acceptance policies
- Pricing structures by waste type
- Experience with transboundary shipments

# Targeted European PCB Treatment Facilities

## High-Temperature Incineration (HTI) All facilities >1100°C

**France:** 2 plants (55k t/y),

**Belgium:** 1 plant (150k t/y)

**UK:** 1 plant (45k+ t/y)

**Romania** 1 plants (+ t/y ?)

**Italy:** 1 plant (50k+ t/y)

**Switzerland:** 2 plants (50k+ t/y ?)

**Scandinavia:** 2 plants (50k+ t/y ?)

**Poland** 1 plants (+ t/y ?)

## Mobile Dechlorination Tech transfer

**2 Italian providers:** service/manufacturer + manufacturer

**1 Serbian provider** service/manufacturer

**1 Slovak provider:** service only

**1 German provider** manufacturer only

**1 Ukainian provider** manufacturer only

# Targeted European PCB Treatment Facilities

## Chemical Dechlorination/Solvent Usage (Fixed Facilities)

**France:** 2 plants (20,000 t/y)

**Italy:** 1 plant (5,000 t/y)

**Netherlands:** 1 plant (3,000 t/y)

**Belgium:** 1 plant (7,000 t/y)

**Romania:** 1 plant (5,000 t/y)

**North Macedonia:** 1 plant (1,500 t/y)

**Azerbaijan:** 1 plant (? t/y)

**UK :** 1 plant ( 500 t/y ?)

**Turkey :** 1 plant (1000 t/y?)

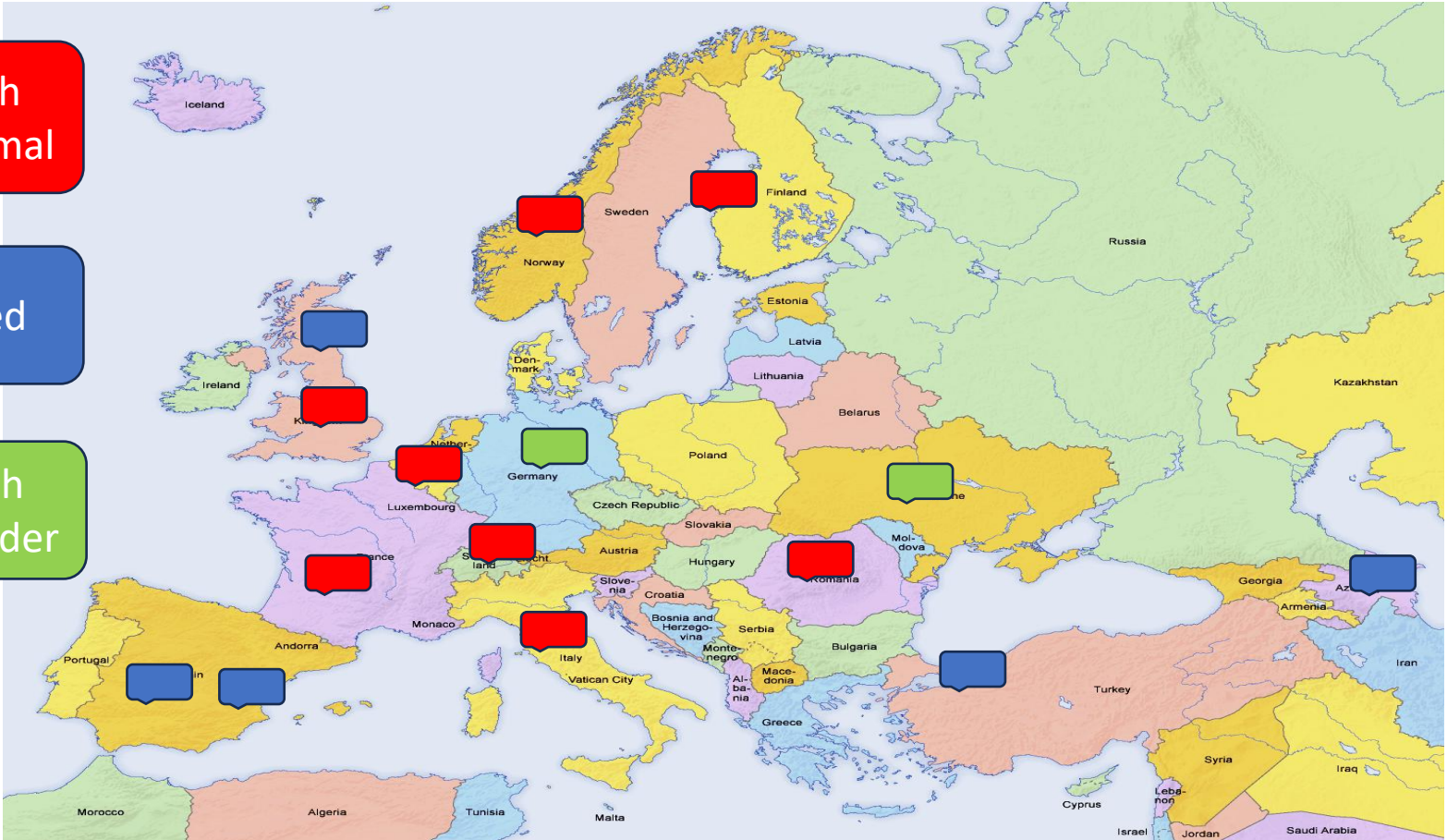
**Spain:** 3 plants (10,000 t/y ?)

# GEOGRAPHIC DISTRIBUTION OF NOT RESPONDING COMPANIES

High Thermal

Fixed

Tech Provider



# NON-RESPONDING COMPANIES IN EUROPE: KEY FINDINGS

15 Companies did not respond



## Not Operational

2 facilities in Spain

Ceased PCB treatment operations



## Market Exit

2 technological providers in  
Germany and Ukraine :  
Dechlorination mobile systems  
no longer in PCB market



## Import Restrictions

1 facility in Poland : High  
Temperature plant  
No PCB imports



## Unknown Status

6 facilities

No response despite multiple  
attempts

No available contacts :  
Turkey/Azerbaijan



## Exclusive Agreements

2 facilities in Belgium and  
France: High Temperature  
plants Serving only specific clients



## PCB by wastes Backup

2 facilities in Norway and  
Finland: Cement and High  
Thermal plants  
by PCB decontamination companies



# EUROPEAN PCB TREATMENT CAPACITY

*Responding European Facilities Only (Tons/year)*



High-Temperature Incineration

~100,000



Stationary Decontamination

~62,500

**TOTAL EUROPEAN  
CAPACITY:**

~162,500 tons/year

## Capacity Breakdown by Technology Type

### Incineration Facilities:

- France and Switzerland (no distinction between PCB and other waste)

### Major Decontamination Facilities:

- France: 30,000 t/y
- Spain: 13,000 t/y
- Netherlands: 10,000 t/y
- Belgium : 5,000 t/y
- Other facilities (Italy – Romania – north Macedonia): 4,500 t/y

# TECHNOLOGY DISTRIBUTION ANALYSIS



## Solvent Extraction

7 Facilities

*BE, FR, NL, IT, RO,*

Most common fixed facility technology using autoclave and solvent distillation



## Chemical Dechlorination

3 Facilities

*ES, MK, FR, RO*

Sodium dispersion most prevalent, one plant with PEG technology



## High-Temp Incineration

2 Facilities

*CH, FR*

>1100°C, 99.9% destruction efficiency



## Mobile Dechlorination

3 companies

*IT, RS*

Suitable for on-site treatment

# LICENSING AND REGULATORY COMPLIANCE

National Waste Treatment License



ISO Certifications (9001/14001)



Basel Convention Notification



EU Waste Shipment Authorization



*Basel Convention notified facilities are particularly suitable for transboundary PCB waste shipments*

# WASTE TYPES ACCEPTED (stationary plant only)



## WASTE TYPES ACCEPTED



PCB liquids/oils (50-500 ppm)

100%



PCB liquids/oils (>500 ppm)

92%



Contaminated equipment  
(transformers, capacitors)

85%



Contaminated soils

38%



Building materials

38%

### Key Finding:

**1) Thermal plant only accepting liquids  
And capacitors**

**2) Stationary Decontamination  
facilities outsource liquid  
Incinerations if only using solvent tech  
In case of Dechlorination accepting  
PCB liquid < 2000 ppm**

# SERVICES OFFERED

**Key Finding:** Almost all companies provide comprehensive additional services including technical advisory, analysis, and transport.

This integrated service capability reduces coordination complexity for waste generators.



## SERVICES OFFERED



# PRICING STRUCTURE BY WASTE TYPE

*Gate Fees (excluding transport costs)*

Waste Type	Low Concentration (<500 ppm)	High Concentration (>500 ppm)
PCB-contaminated oils	350-1,300 EUR/t	596-2,100 EUR/t
Transformers (with copper)	250-800 EUR/t	450-2,200 EUR/t
Capacitors / AI equipment	3,000 EUR/t	3,000 EUR/t
Contaminated soils	960-1,000 EUR/t	1,200-3,000 EUR/t



- Transport costs typically add 50-100% to gate fees for overseas projects
- Volume-based negotiations can yield significant cost savings

# FOCUS! MOBILE DECHLORINATION UNITS: OPPORTUNITIES AND CONSTRAINTS



## OPPORTUNITIES

### On-Site Treatment Option

- Suitable for onsite operation even online
- Significant reduction in transport costs
- Local treatment minimizes cross-border logistics



## TECHNICAL CONSTRAINTS

### Contamination Limits:

- Effective only for 1,000-2,000 ppm maximum
- Not suitable for high-concentration PCBs
- Treatment duration for each assets: Days/weeks

### Target Equipment:

- Medium to large power transformers
- Limited applicability to small equipment



## MARKET AVAILABILITY

Provider 1 ITA

**10+ units**

*Available for deployment*

Provider 2 SRB

**2 units**

*Limited availability*

Provider 3 ITA

**0 units**

*Manufacturing only*

# KEY MARKET FINDINGS



## Adequate Capacity

Total European capacity exceeds current demand, creating favorable market conditions



## Technology Diversity

Multiple proven pathways available: thermal, chemical, and mobile solutions



## Competitive Pricing

Price variation among facilities creates opportunities for cost optimization



## Operational Challenges

53% non-response rate indicates market consolidation and capacity constraints

# MARKET DYNAMICS AND CONSTRAINTS

## Market Strengths

- Sufficient treatment capacity across Europe
- Multiple technology pathways available
- Established regulatory frameworks
- Strong interest in transboundary projects

## Market Challenges

- High logistics costs for international shipments
- Quality variation among service providers
- Long processing timelines (4-12 months)
- Limited local capacities in developing regions

## Critical Insight: Market Consolidation

The inability of certain operators to remain competitive is primarily due to limited authorized volumes, outdated technology, and excessive distance from logistics hubs. This trend favors larger, integrated facilities with both decontamination and thermal destruction capabilities.

# STRATEGIC RECOMMENDATIONS

1

## Prioritize Basel-Notified Facilities

Focus procurement on facilities with established Basel Convention procedures

2

## Implement Hybrid Strategies

Combine local decontamination for low-concentration waste with export for high-concentration materials

3

## Leverage Cooperative Procurement

Aggregate volumes from multiple countries to achieve better pricing and justify dedicated logistics

4

## Consider Mobile Solutions

Explore mobile dechlorination units for large transformer inventories to reduce transport costs

# MARKET STUDY OF PCB FACILITIES

*Europe and Africa Regional Assessment*

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