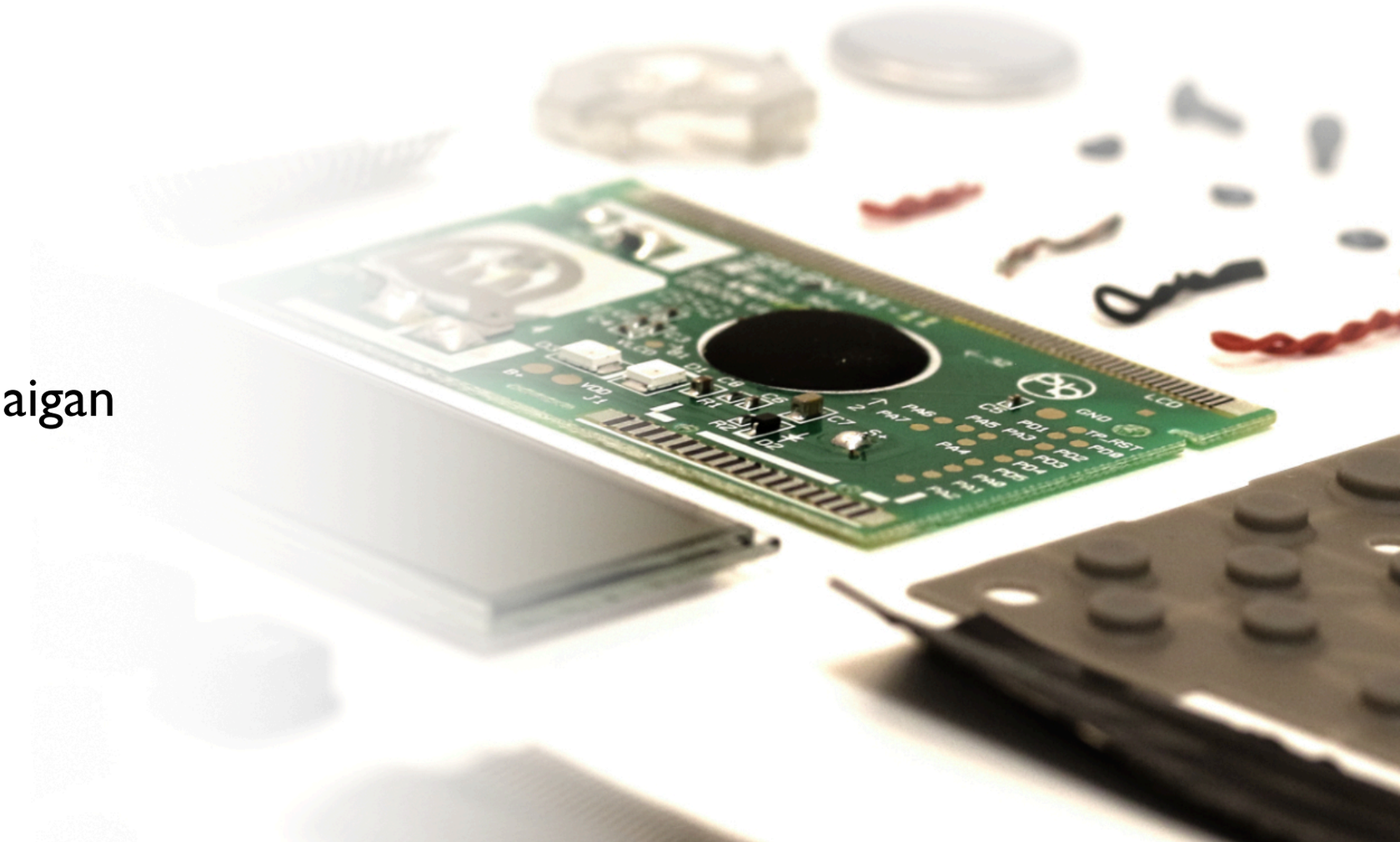
Claigan
Less Journey. More Results.

RoHS Update
Where is this all headed?

Presented by:
Bruce Calder
VP Consulting Services at Claigan

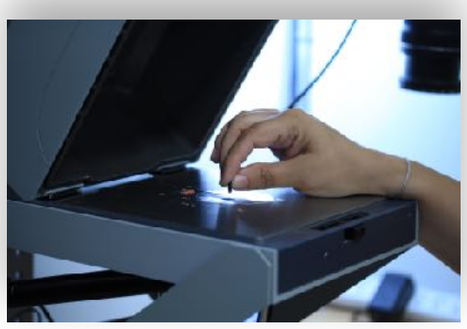
Sep 1 2022



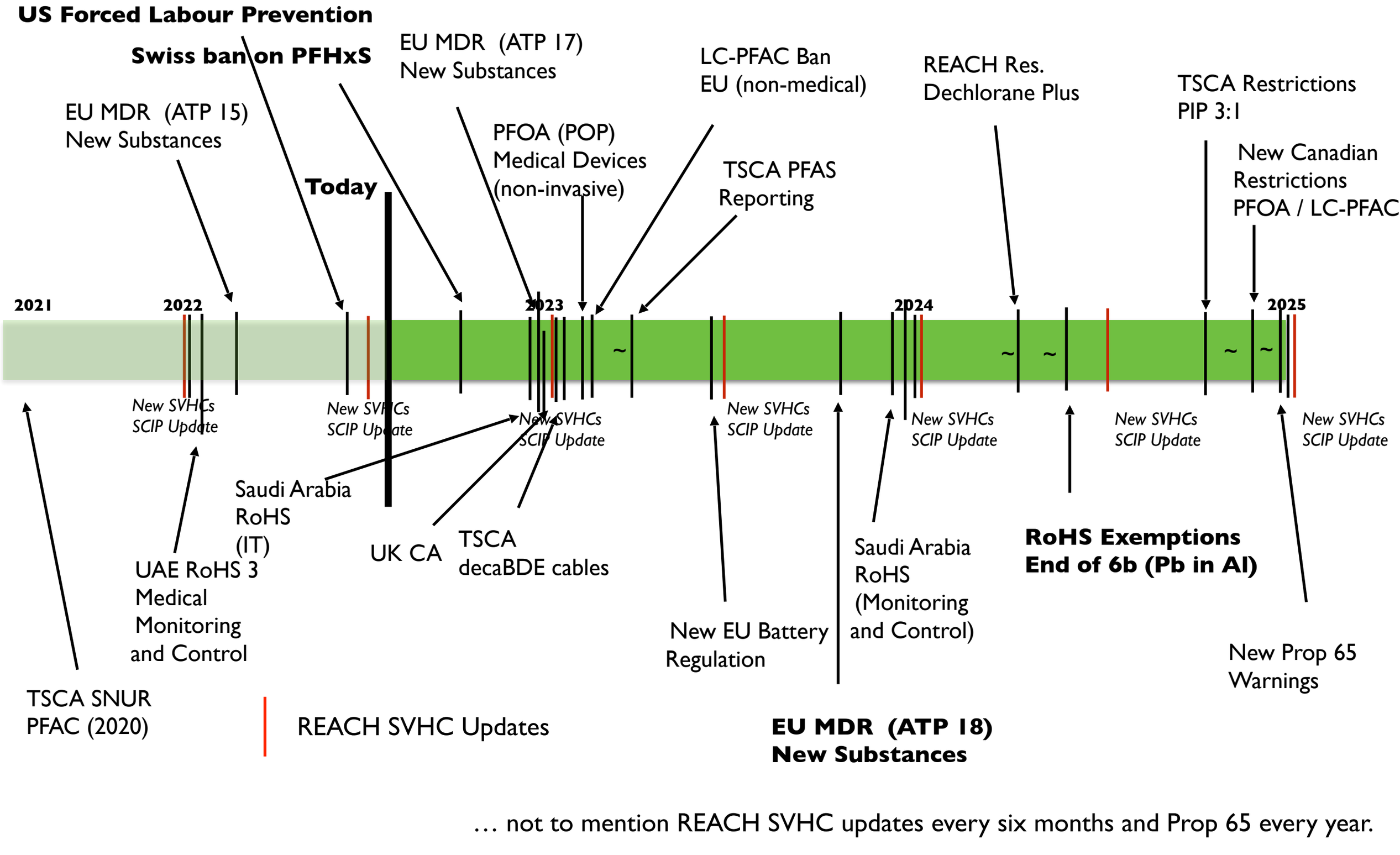
Claigan Testing

- Laboratory testing
  - Tested 10,000+ products for RoHS (and REACH, Prop 65, TSCA, PFAS)
  - Advantage
    - Complete testing solutions
      - Screening
      - Concentration
      - Exposure

- See Claigan for new RoHS substances (MCCP and TBBPA)



Restricted Materials
Constant Deadlines



… not to mention REACH SVHC updates every six months and Prop 65 every year.

Overview - Agenda

- A brief history on RoHS
- Exemptions
  - Update on exemption
  - Key Exemption Change
- New substances
  - Two new substances approved
- Re-write of RoHS Directive
  - Where is RoHS headed
- Q&A

- New Claigan videos

RoHS Exemptions ‘Update’

- **Update**
  - None to provide

- **Notes**
  - If an exemption is in renewal it is still valid
  - If an exemption has a expiry ‘date’ that is its renewal cycle
    - And only expires if not one submits a renewal application
    - Unless already replaced (*example later in presentation*)
  - If an exemption has expires X months from decision
    - That is a real expiry

Example
Exemption 6b-i

- **6b-i**
  - "Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling "

Expiry

	Exemption formulation	Duration
6(b)-I	*Lead as an alloying element in aluminium containing up to 0,4% lead by weight provided it stems from lead-bearing aluminium scrap recycling*	Expires 12 months after the decision for all categories
6(b)-III	*Lead as an alloying element in aluminium casting alloys containing up to 0,3% lead by weight provided it stems from lead-bearing aluminium scrap recycling*	Expires on 21 July 2026 for all categories

Renewal Deadline

Further Example Exemption 6a

- **6a**
  - "Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in galvanized steel containing up to 0,35 % lead by weight"

Exemption formulation	Duration
6(a): Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in galvanized steel containing up to 0,35 % lead by weight	— 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
6(a)-I: Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight	Expires on 21 July 2024 for all categories
6(a)-II: Lead as an alloying element in batch hot dip galvanised steel components containing up to 0,2 % lead by weight	Expires on 21 July 2026 for all categories

"Renewal Deadline" But already replaced by the below

Renewal Deadline

Proposed RoHS Exemption Changes

- OEKO (the consultant for the 2021 exemption renewal) published there recommendations
  - 6(a), 6(a)-I, 6(b), 6(b)-I, 6(b)-II, 6(c), 7(a), 7(c)-I and 7 (c)-II of Annex III

- Next steps
  - Review by EU commission
  - EU commission consultation with industry
  - Final version

- Most significant change - Pb in Al (6b)

6b - Pb in Al

- 6b-i
  - Pb in cast Al up to 0.3%
    - (Down from 0.4%)
  - Renewed until July 2026 (maximum length of renewal)

- 6b-ii
  - Expiring - Pb in machined Al up to 0.4%
  - ~ July 2024 end date (subject to decision timeline of EU commission)

Exemption 6b (now 6b-i and 6b-ii)

- **6b-i**
  - "Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling "

	Exemption formulation	Duration
6(b)-I	*Lead as an alloying element in aluminium containing up to 0,4% lead by weight provided it stems from lead-bearing aluminium scrap recycling*	Expires 12 months after the decision for all categories
6(b)-III	*Lead as an alloying element in aluminium casting alloys containing up to 0,3% lead by weight provided it stems from lead-bearing aluminium scrap recycling*	Expires on 21 July 2026 for all categories

Exemption 6b

- **6b-ii**
  - "Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight "

	Exemption formulation	Duration
6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight.	Expires 18 months after the decision for all categories
6(b)-IV	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight in gas valves applied in category 1 EEE (large household appliances)	Expires on 31 December 2024

Cast Aluminum

- 6b-iii (formerly 6b-i)
  - Pb in cast Al up to 0.3%
  - Renewed

- Process
  - Casts or poured into a mold

Machined Aluminum

- 6b-ii
  - Pb in machined Al up to 0.4%
  - <u>Ending - ~July 2024</u>

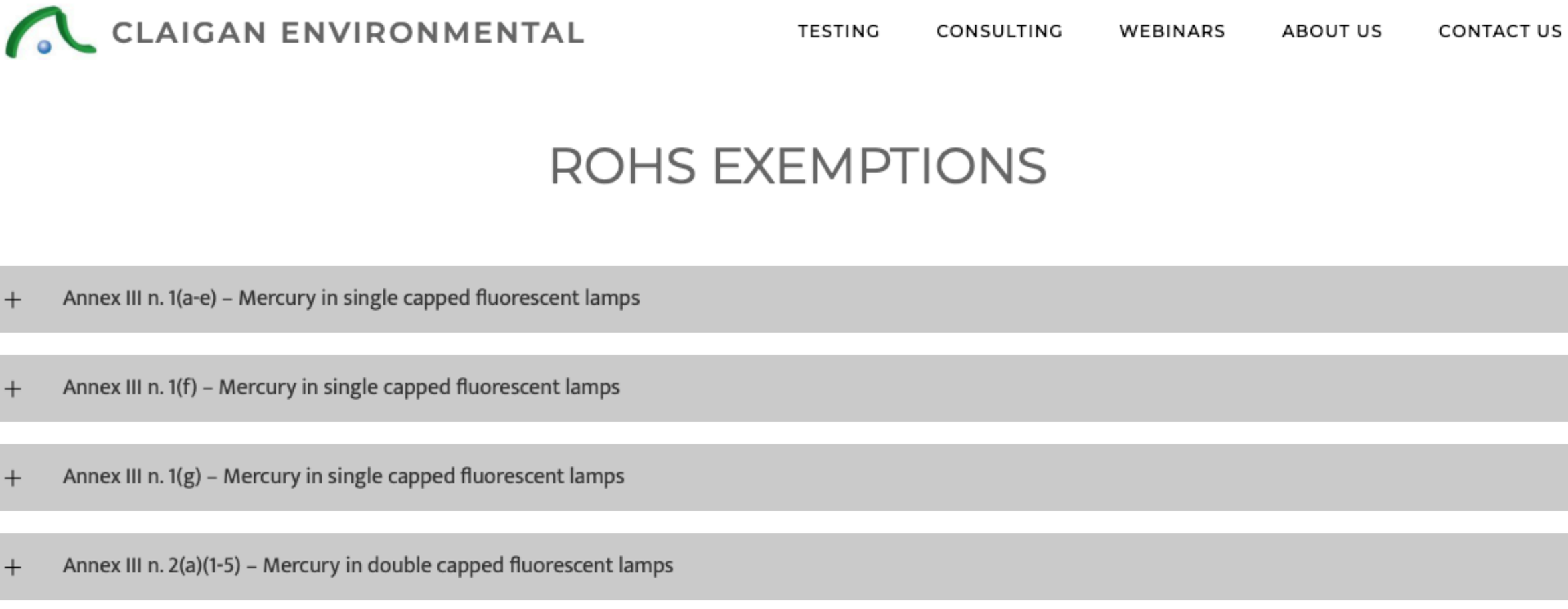
- Includes processes for wrought aluminum
  - Machined aluminum
    - Machined from solid Al
    - ie. CNC machined
    - Often has ‘machined’ marks
  - Extruded aluminum
  - Forged aluminum
  - Rolled aluminum

Machined Aluminum - More

Where I can find the current exemptions

- **EU Commission**
  - Spreadsheet can be found here

- **Claigan**
  - Claigan summary page can be found here
    - *Note - undergoing slight updates*



ECHA
RoHS Exemptions (Today)

- **ECHA RoHS Exemption List**
  - As part of REACH or separate

ROHS - Exemptions from Article 4(1) Restrictions, Annexes III & IV

EU. Exemptions from Art. 4(1) Restrictions (Annexes III & IV), Directive 2011/65/EU (RoHS), as amended by Directive (EU) 2022/287, OJ L 43, 24 February 2022

This list contains the application exemptions listed in Annexes III and IV to RoHS (2011/65/EU). Annex III contains applications exempted from the restriction in Article 4(1), while Annex IV lists applications exempted from the restriction in Article 4(1) specific to medical devices and monitoring and control instruments.

RELEVANT LEGISLATION

- RoHS - Restriction of Hazardous Substances in Electrical & Electronic Equipment Directive

Contact EUCLEF Helpdesk

Last updated 01 septiembre 2022. Database contains 230 unique substances/entries.

› **Filter the list**

Página 1 de 5 | 50 Resultados por página | Mostrando el intervalo 1 - 50 de 230 resultados. | ← Primero | Anterior | Siguiente | Último →

Substance Name (expand / collapse)	EC No.	CAS No.	Annex	Reference	Application	Expiration Date	
Barium chromate	233-660-5	10294-40-3	III	45	In long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	04/20/2026	
BBP;Butyl benzyl phthalate	201-622-7	85-68-7	IV	47	In spare parts recovered from and used for the repair or refurbishment of medical devices, including in vitro diagnostic medical devices, and their accessories, provided that the reuse takes place in auditable closed-loop business-to-business return systems and that each reuse of parts is notified to the customer	07/21/2028	
Bis(2-ethylhexyl) phthalate;DEHP	204-211-0	117-81-7	III	43	In rubber components in engine systems, designed for use in equipment that is not intended solely for consumer use	07/21/2024	

New RoHS Substances

- **Details**
  - MCCP and additive TBBPA approved for addition to RoHS

- **Next steps**
  - Draft restriction in ~October 2022
  - Likely restriction ~2025

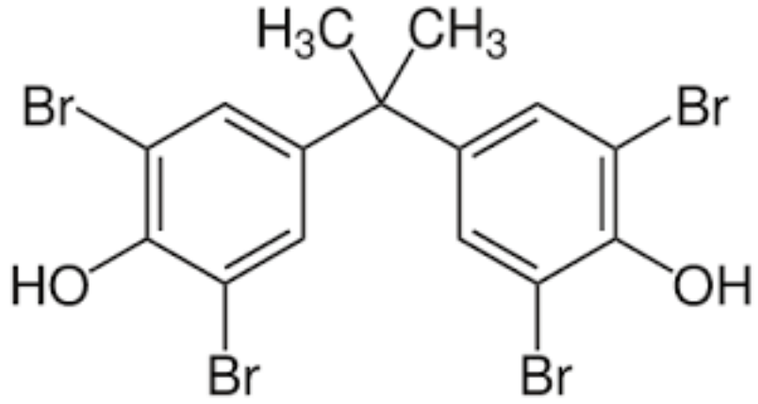
- **Legislation**
  - https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13469-Hazardous-substances-in-electrical-and-electronic-equipment-list-of-restricted-substances-update-_en

Additive TBBPA

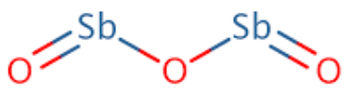
- **Details**
  - 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol
    - EC# 201-236-9

High Risk

- **Uses**
  - Additive (regulated)
    - /w antimony trioxide
    - Brominated flame retardant in ABS



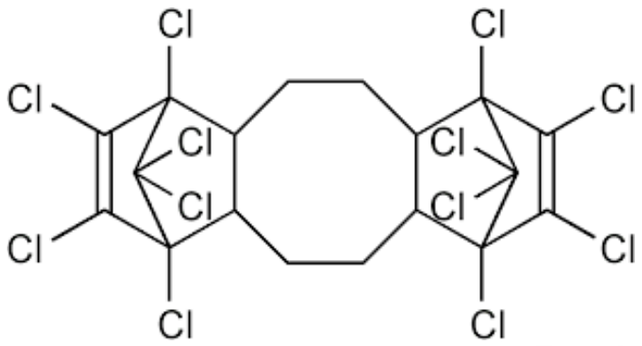
- Reactive (not regulated)
  - Ingredient for brominated polycarbonate
  - Principle material of circuit boards



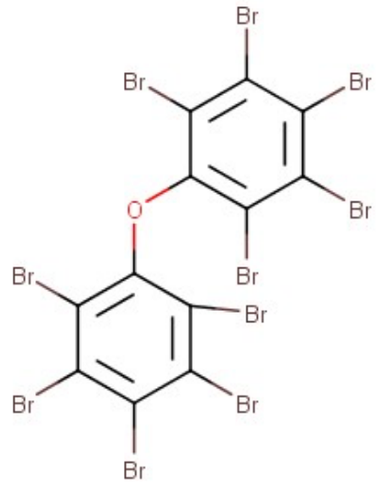
Halogenated Flame Retardants
Gas Phase Flame Retardancy

Claigan

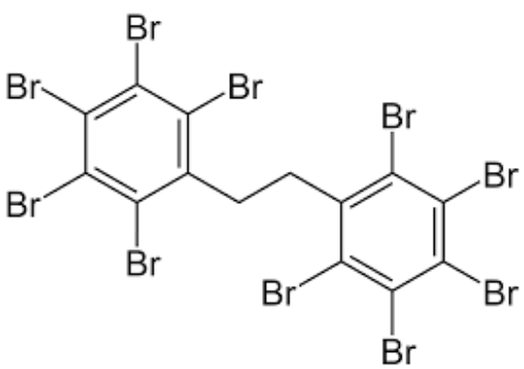
Halogenated Flame Retardants



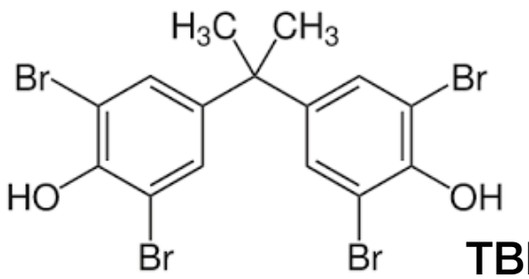
Dechlorane Plus



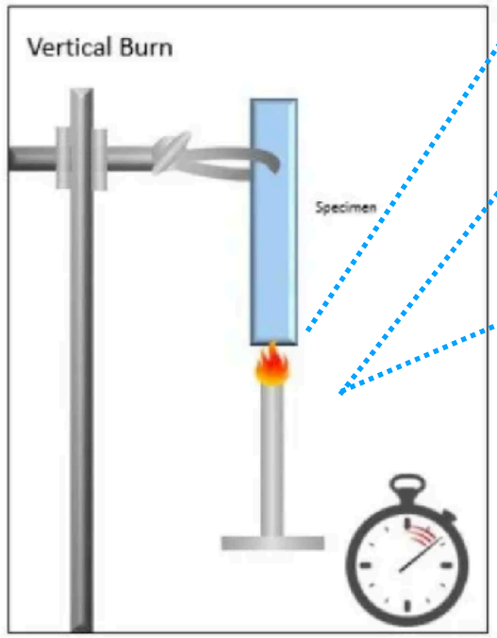
decaBDE



DBDPE



TBBPA



Very high energy particle

H*

Absorbs some energy

HCl

Cl

Sb_2O_3

$SbCl_3$

H_2O

Absorbs more energy

If H* reacts with another H*, the excess energy would be re-apply to the plastic, continuing the burning.

Instead H* reacting with the larger halogen (Cl or Br) and then the even larger Sb absorbs a lot of the excess energy - with less being re-applied to the plastics

Next Batch of REACH SVHC

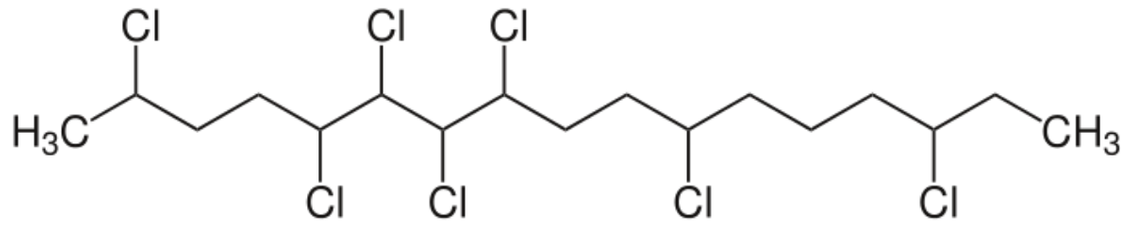
- These chemicals are expected to start consultation in August
  - reaction mass of 2,2,3,3,5,5,6,6-octafluoro-4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl)morpholine and 2,2,3,3,5,5,6,6-octafluoro-4-(heptafluoropropyl)morpholine
  - Perfluoroheptanoic acid and its salts
  - Melamine
  - Isobutyl 4-hydroxybenzoate
  - Bis(2-ethylhexyl) tetrabromophthalate
  - Barium diboron tetraoxide
  - 4,4'-sulphonyldiphenol
  - **2,2’,6,6'-tetrabromo-4,4'-isopropylidenediphenol (TBBPA)**
  - 1,1’-[ethane-1,2-diylbisoxy]bis[2,4,6-tribromobenzene]

- Decision on inclusion in REACH SVHC list by December 2022
  - More specifics next month

MCCPs

- **Details**
  - Medium Chain Chlorinated Paraffins
  - EC# 287-477-0
  - Family of C14 to C17 chlorinated paraffins

High Risk
Low Risk in POP
Compliant products



- **Uses**
  - Secondary plasticizer
    - Enable orthophthalates (ex DEHP) be more effective
  - Flame retardant (uncommon use)
    - In nitrile rubber in conveyor belts
  - Not controlled as MCCP
    - Controlled as chlorine %
    - Will always have presence of SCCPs
    - Redundant with EU POP SCCP restriction

Re-Write of RoHS Directive

- **In consultation**
  - As part of REACH or separate

- **Likely outcome**
  - Moved to REACH Restrictions
  - Or
  - Separate, but all technical activities managed by ECHA
    - Exemption renewal
    - Addition of new substances

- **Next steps**
  - Proposals likely to start by end of 2022

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Recommendations

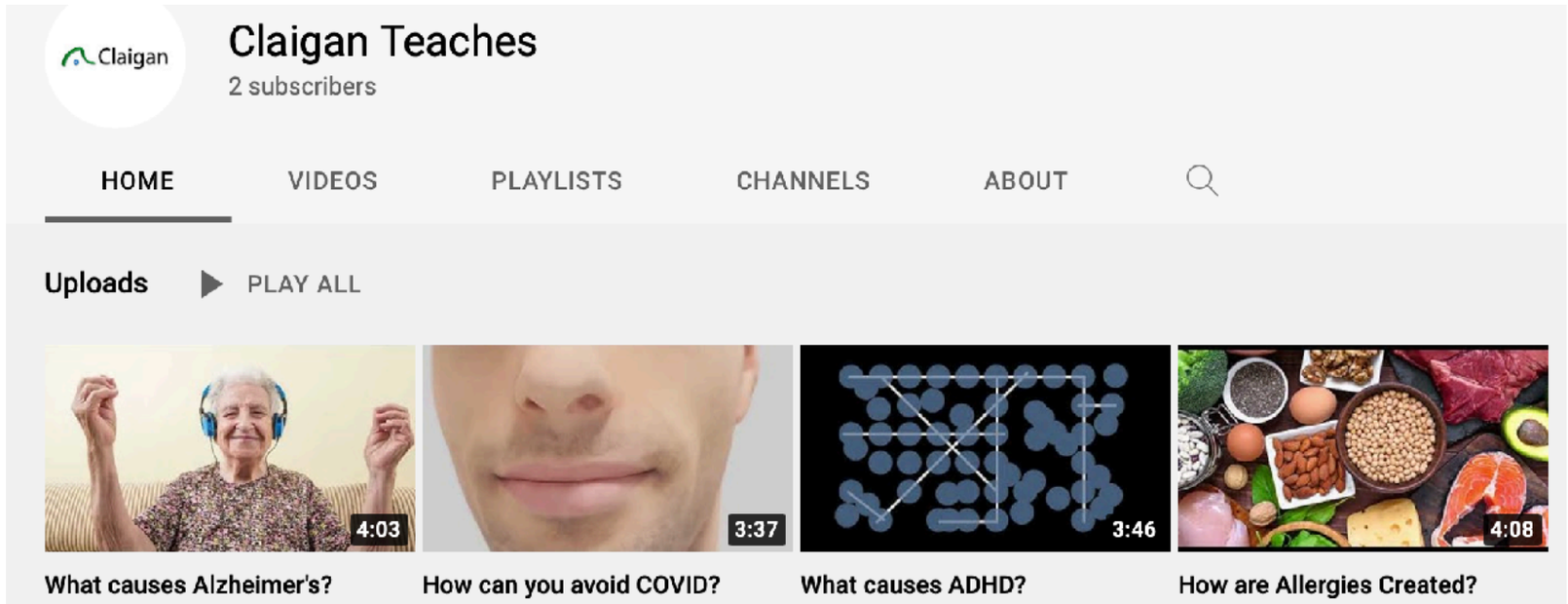
- **New substances**
  - Add them into new product testing
    - TBBPA and MCCP process have great overlap with PBDE and SCCP processes

- **Exemptions**
  - Work on AI change (6b)
  - The rest should have little impact

- **Compliance in general**
  - Are you testing new designs? No. The risk is not what it used to be.
    - The ‘dog ate my homework’ / I have supplier declarations does not work anymore.

"Claigan Teaches"

- **Neurochemistry**
  - Short videos by students at Claigan
    - Leveraging Claigan's chemical and exposure knowledge
    - Explaining complicated subject
    - But in their voice



- **Topics**
  - Allergy formation
  - COVID transmission
  - Causes of ADHD
  - Causes of Alzheimer's
  - Mechanism of anxiety / depression

GUARANTEE
You will learn things about things that affect you and your family

- **Videos - 'Claigan Teaches'**

Claigan Testing

- Laboratory testing
  - Tested 10,000+ products for RoHS (and REACH, Prop 65, TSCA, PFAS)
  - Advantage
    - Complete testing solutions
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Q&A

Claigan Teaches

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