

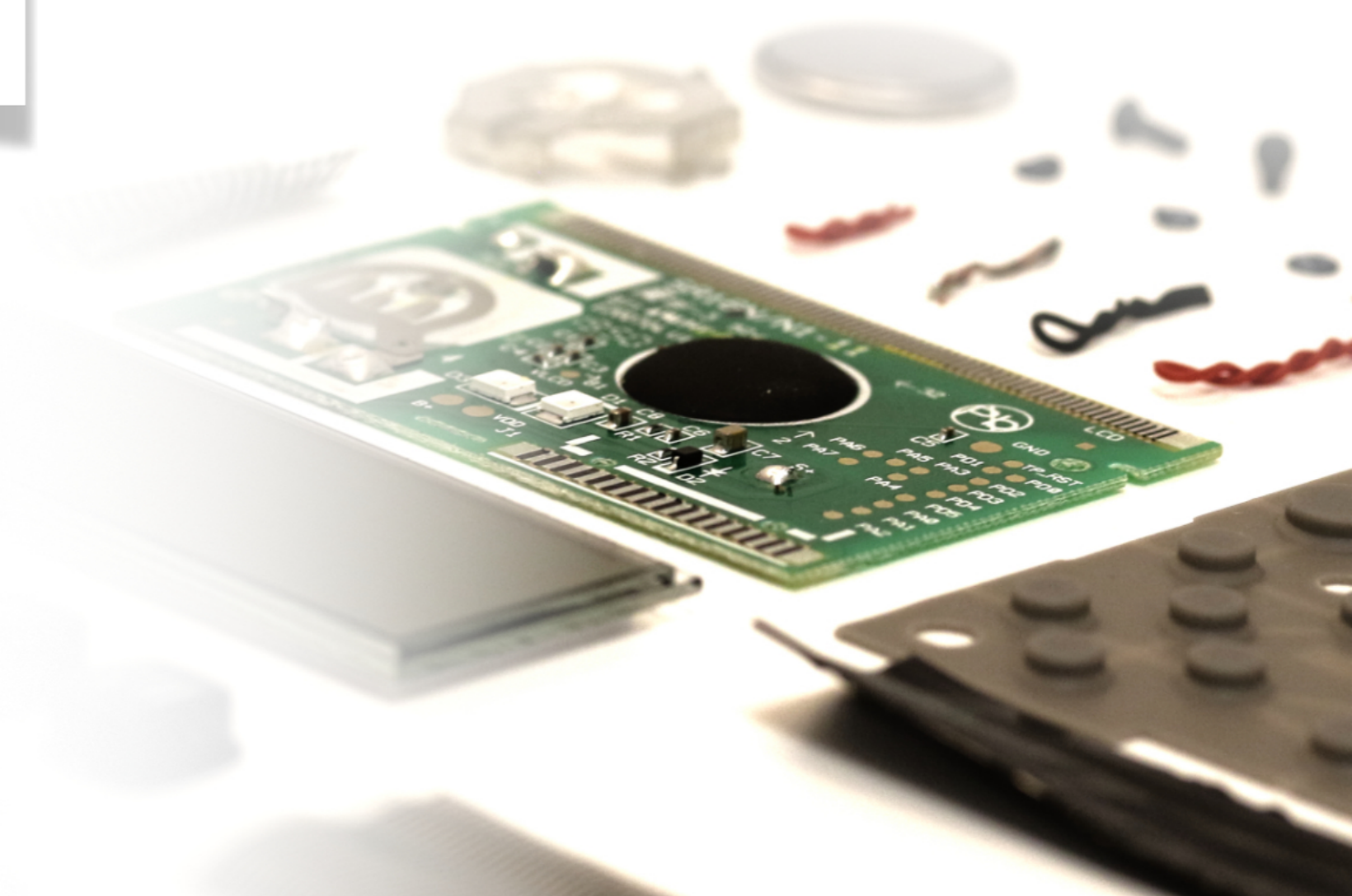
Claigan Webinar

New Restricted Substances

+ US PFAS Update

Presented by:
Bruce Calder
VP Consulting

November 12, 2025



Overview - Agenda

- DBDPE
- Dechlorane Plus
- UV-328
- Bisphenols
- Critical Minerals

Now added -

- US TSCA PFAS
- Minnesota PFAS
- New Mexico PFAS



US TSCA PFAS Update

- Proposed exemptions from PFAS reporting
 - PFAS < 0.1% in mixtures or products
 - **Imported articles**
 - Byproducts, impurities, R&D chemicals, and non-isolated intermediates
- Proposal has to go through full rule making process

Key Minnesota Update

- Legal [judgement](#) in review of Minnesota PFAS rules
 - Six (6) deficiencies that need to be completed before reporting
- Short Summary
 - July 2026 reporting still on target
 - But Minnesota has to fix these six (6) deficiencies before final

SUMMARY

Judge Mortenson recommended disapproval of the proposed rules on one procedural ground: the failure of the Agency to include an assessment of the cumulative effect of the proposed rules with federal regulations on PFAS reporting, as required by Minn. Stat. § 14.131(8) (2024). The Judge also recommended disapproval of proposed Minn. R. 7026.0010, subp. 14, .0040, .0050, .0090, and .0100, because they are either not rationally related to the Agency's objective or the record does not demonstrate the need or reasonableness of the rule; they exceed, conflict with, or do not comply with the enabling statute; and are not a rule or are not otherwise an enforceable law, violating Minn. R. 1400.2100 (2025). Judge Mortenson made recommendations for correcting the substantive defects.

Minnesota PFAS

- **Direct discussion with Minnesota**
 - Reporting still due July 1 2026
 - MPCA's current focus on the guidance for reporting on July 1
 - Minnesota does not have to provide correction to deficiencies until Feb 24 2026
 - But hoping to publish in advance
 - Public announcement coming.
- **Reporting due - July 1 2026**
 - Just over 7 months away

New Mexico PFAS

- Reporting
 - Very limited scope
- Restriction
 - Very limited scope. Very specific consumer products
- Labelling ([NEW](#))
 - Everyone

Exempted from Reporting



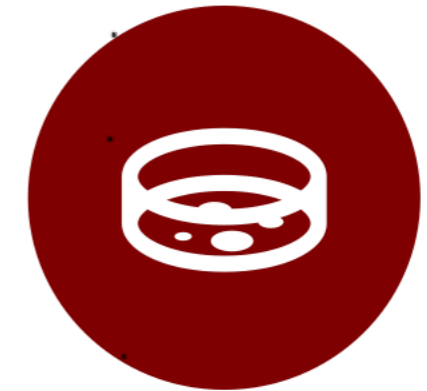
Medical



Heating, Cooling, Ventilation,
Air-Conditioning, Refrigeration



Veterinary



Public Health, Environmental
& Water Testing Equipment



Motor Vehicles



Other Motor Vehicles



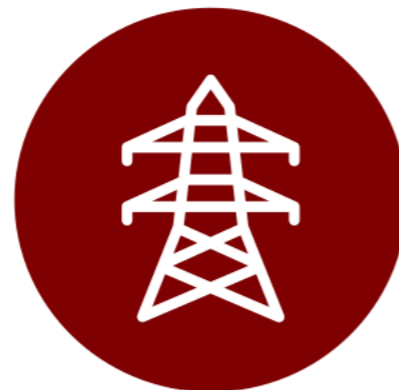
Watercraft & Aircraft



Semiconductors



Non-consumer Electronics
& Lab Equipment



Electricity Generation,
Distribution & Storage



Currently Unavoidable
Uses



Products Containing
Fluoropolymers

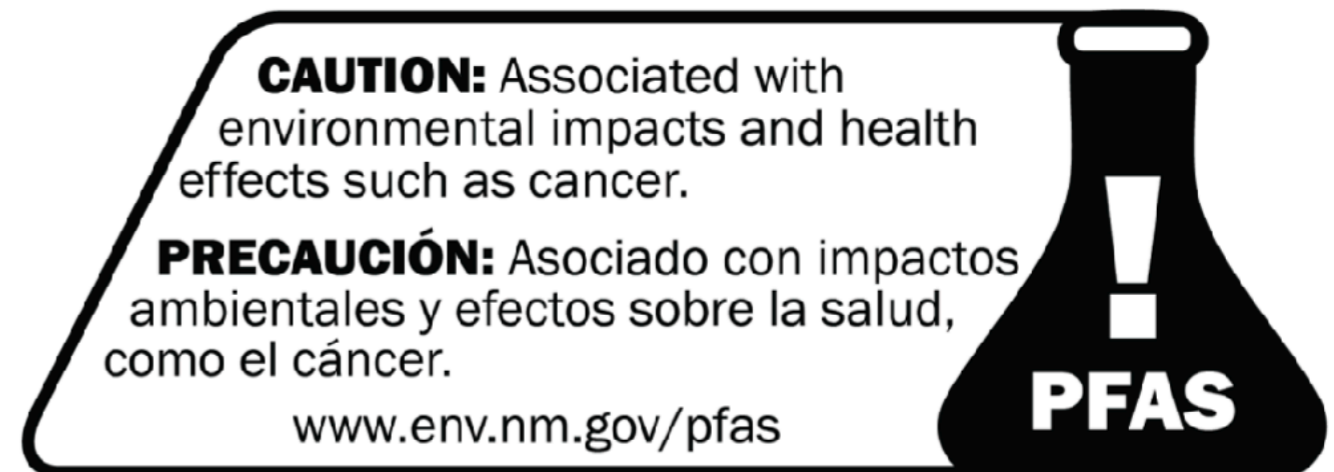
New Mexico PFAS Labelling

- Everyone is in scope
 - But exemptions from labelling are available for reporting exempt products
 - In certain non-consumer contacting situations
- Additional rules for ‘durable complex goods’

Labels for Products



Label for Product Packaging



Can apply for exemptions from labelling

If

A manufacturer can demonstrate that consumers of the product will not come into direct contact with intentionally added PFAS while the product is being used as intended and throughout the useful life of the product

Motor Vehicles

Other Motor Vehicles

Watercraft & Aircraft

Semiconductors



Non-consumer Electronics
& Lab Equipment



Electricity Generation,
Distribution & Storage



Currently Unavoidable
Uses



Products Containing
Fluoropolymers

New Mexico PFAS Reporting - Durable Goods

- Durable goods
 - a product that is a manufactured good composed of 100 or more manufactured components, with an intended useful life of five (5) or more years, where the product is typically not consumed, destroyed, or discarded after a single use.
- Requirements
 - Symbol and disclosure on the product specification sheet
 - Internet website or QR code to NMED website on PFAS
 - Operations and maintenance manual to include
 - Statement indicating present of PFAS
 - Component list in sufficient detail to locate components

Reporting - Durable Goods - Example

California Proposition 65 Warning

⚠ WARNING: Operating, servicing and maintaining a passenger vehicle or off-highway motor vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

Event Data Recorders

This vehicle is equipped with an event data recorder (EDR). The main purpose of an EDR is to record, in certain crash or near crash-like situations, such as an air bag deployment or hitting a road obstacle, data that will assist in understanding how a vehicle's systems performed. **The EDR is designed to record data related to vehicle dynamics and safety systems for a short period of time, typically 30 seconds or less.** The EDR in this vehicle is designed to record such data as:

- How various systems in your vehicle were operating;
- Whether or not the driver and passenger safety belts were buckled/fastened;
- How far (if at all) the driver was depressing the accelerator and/or brake pedal; and,
- How fast the vehicle was traveling.



This vehicle is made with PFAS chemicals or contains component parts made with PFAS chemicals. PFAS are a family of chemicals, exposure to which are associated with negative health and environmental effects. The following components of this vehicle contain PFAS:

1. AAA
2. BBB
3. CCC

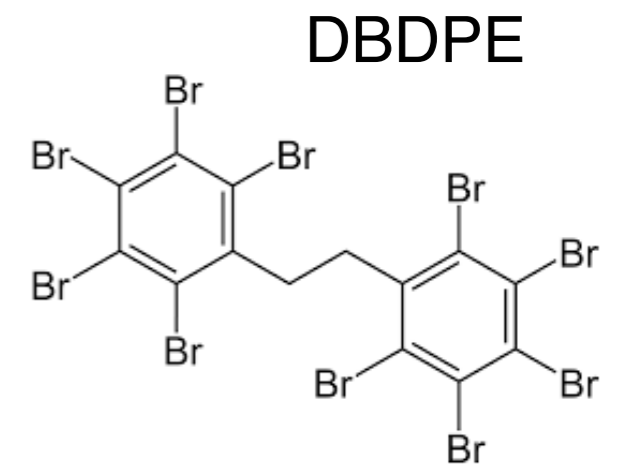
Este producto está fabricado con PFAS o contiene componentes fabricados con PFAS. Los PFAS son una familia de sustancias químicas cuya exposición se asocia con efectos negativos para la salud y el medio ambiente. Los siguientes componentes de este vehículo contienen PFAS:

1. AAA
2. BBB
3. CCC

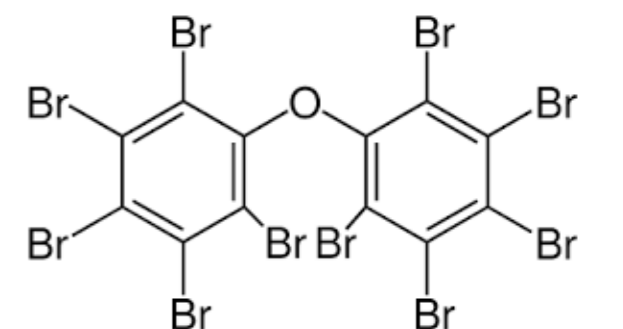
DBDPE

- **Decabromodiphenyl ethane (DBDPE)**

- Very common flame retardant
- Primarily in heat shrinks and connectors



- Nearly identical application as RoHS banned decaBDE



DecaBDE

- **EU REACH SVHC**

- [Newest REACH SVHC \(Nov 5\)](#)
- Will involve SVHC and SCIP updates for most electronics

Australia - IChEMS - Part I

- **Australia Industrial Chemicals Environmental Management Standard (IChEMS)**

- Restricted in [Schedule 6](#)

- Prohibited at 500 ppm - Jan 1 2027

- Exempted from ban (mostly until July 2037)

- *Aerospace*

- *Automotive, marine, rail, and other transportation*

- *Defense applications*

- *Electrical and Electronic Equipment*

- *Building and construction materials*

- *Agricultural, mining, and machinery*

- *Garden, forestry, and outdoor power equipment*

- *Industrial machinery*



Australia - IChEMS - Part 2

- **Australia Industrial Chemicals Environmental Management Standard (IChEMS)**
 - Reporting required for exempted products in [Schedule 6](#)
 - Communication to supply chain
 - *Similar to EU REACH SVHC*
 - Reporting to national authorities if requested
 - *In Australia, burden often put on customs broker to ensure compliance*
 - *Substance, concentration, annual volume, and justification for use.*
 - January 1 2027

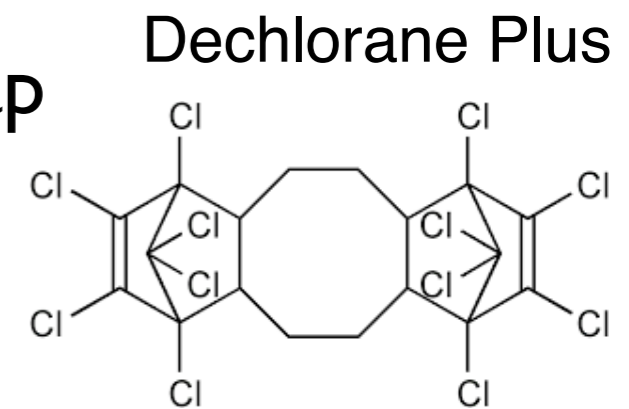


Dechlorane Plus

1,4:7,10-Dimethanodibenzo[a,e]cyclooctene, 1,2,3,4,7,8,9,10,13,13,14,14-dodecachloro-1,4,4a,5,6,6a,7,10,10a,11,12,12a-dodecahydro-

- **Dechlorane Plus**

- Infrequent flame retardant
- Primarily in heat shrink and transformer wrap



- Similar application to decaBDE and DBDPE

Dechlorane Plus European Union

- **EU REACH SVHC**
 - [REACH SVHC since January 2018](#)
- **EU POP Restriction**
 - [Restricted under EU POP](#)
 - October 15 2025 - 1,000 ppm
 - April 15 2028 - 1 ppm

Unlikely to stay

Unless 10 ppm, would effectively ban recycled plastic

And 10 ppm is the [new limit](#) for decaBDE - with the same application

Australia - IChEMS - Part 1

- **Australia Industrial Chemicals Environmental Management Standard (IChEMS)**
 - Restricted in [Schedule 6](#)
 - Prohibited 1 July 2026. 1,000 ppm 'defacto' limit
 - Exempted from ban (mostly until July 2031)
 - *Aerospace*
 - *Defense applications*
 - *Repair parts (July 2044)*



Australia - IChEMS - Part 2

- **Australia Industrial Chemicals Environmental Management Standard (IChEMS)**
 - Reporting required for exempted products in [Schedule 6](#)
 - Communication to supply chain
 - *Similar to EU REACH SVHC*
 - Reporting to national authorities if requested
 - *In Australia, burden often put on customs broker to ensure compliance*
 - *Substance, concentration, annual volume, and justification for use.*
 - July 1 2026



- **Singapore control of Hazardous Substances**
 - [Restricted in 2nd Schedule of Environmental Protection and Management Act](#)
 - Restricted February 26 2026
 - Exempted in
 - *Medical devices*
 - *Aerospace and defence*
 - *Replacement parts*
 - ***Plastics and rubbers***
 - *...which is where Dechlorane Plus is used*

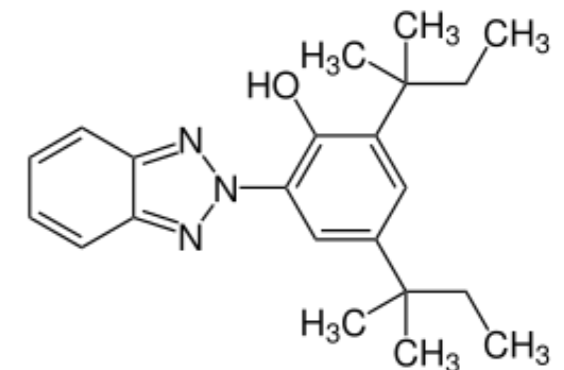
UV-328

2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentylphenol

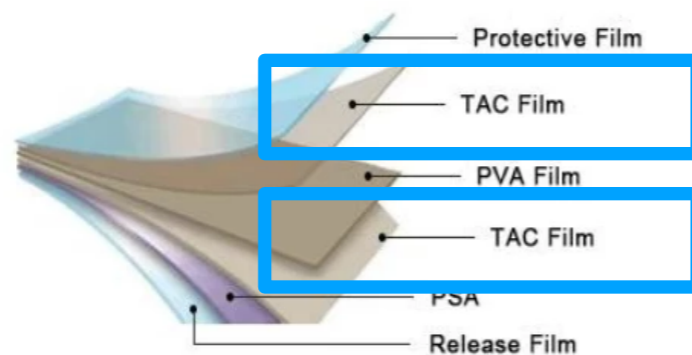
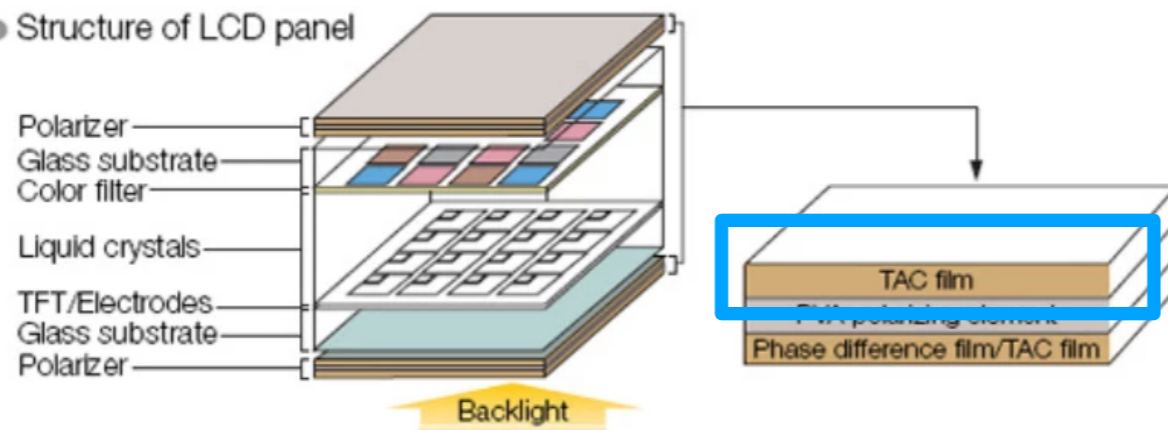
- **UV-328**

- UV stabilizer for plastics
- Almost exclusively used in triacetyl acetate (TAC) films used as polarizers on LCDs

UV-328



● Structure of LCD panel



UV-328

European Union

- **EU REACH SVHC**
 - [REACH SVHC since December 2014](#)
- **EU POP Restriction**
 - [Restricted under EU POP](#)
 - August 4 2025 - 100 ppm
 - August 4 2027 - 10 ppm
 - August 4 2029 - 1 ppm

Unlikely to stay

Below 10 ppm would effectively ban recycled plastic and UV-326

Australia - IChEMS - Part 1

- **Australia Industrial Chemicals Environmental Management Standard (IChEMS)**
 - Restricted in [Schedule 6](#)
 - Prohibited 1 July 2026. 1,000 ppm 'defacto' limit
 - Exempted from ban (mostly until July 2031)
 - *Motor vehicles*
 - **TAC polarizers**
 - *Certain industrial coatings*
 - *Photographic paper*
 - *Repair parts (July 2044)*



Australia - IChEMS - Part 2

- **Australia Industrial Chemicals Environmental Management Standard (IChEMS)**

- Reporting required for exempted products in [Schedule 6](#)

- Communication to supply chain

LCD Screens

- *Similar to EU REACH SVHC*

- Reporting to national authorities if requested

- *In Australia, burden often put on customs broker to ensure compliance*

- *Substance, concentration, annual volume, and justification for use.*

- July 1 2026

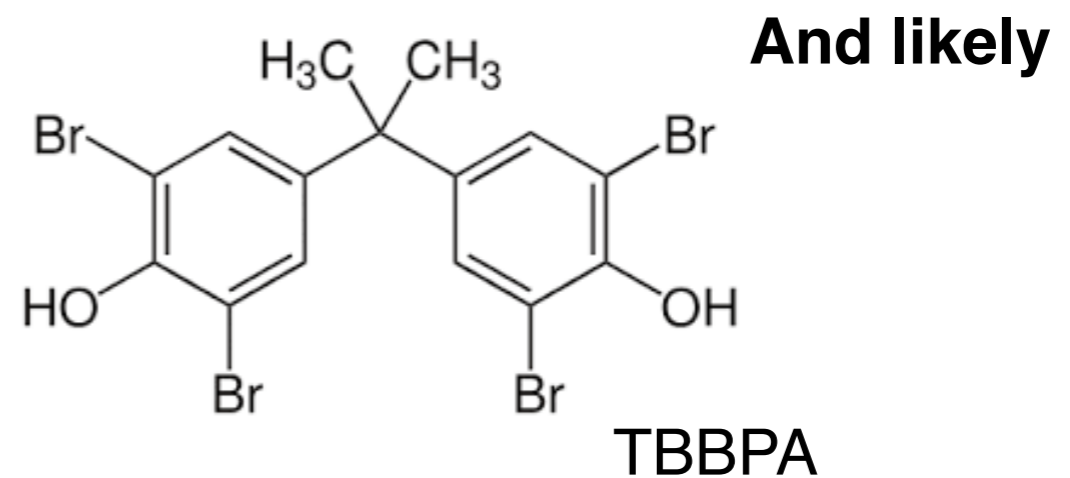
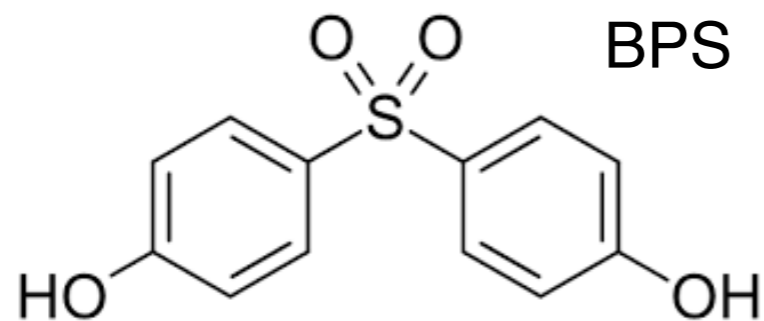
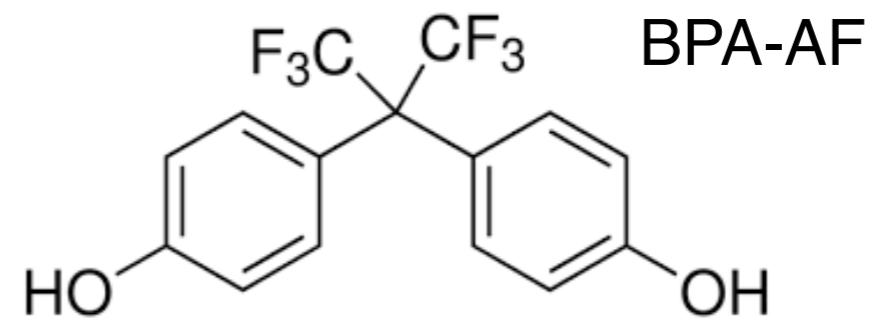
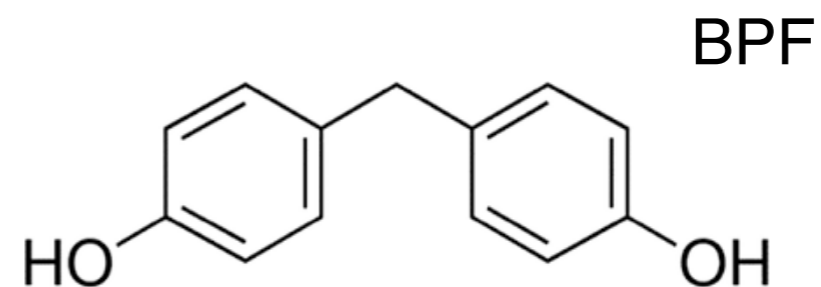
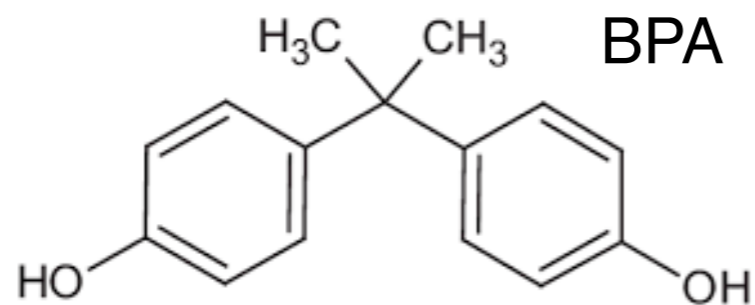


- **Singapore control of Hazardous Substances**
 - [Restricted in 2nd Schedule of Environmental Protection and Management Act](#)
 - Restricted February 26 2026
 - Exempted in
 - *Medical devices*
 - *Adhesives and fillers*
 - *Replacement parts*
 - **Plastics and rubbers**
 - *Motor vehicles*
 - **TAC polarizers**
 - *Plus a range of other exemptions*

p-p'-bisphenols

- **California's name for the BPA family**

- Primarily



p-p'-bisphenols Uses

Claigan tests regularly for all five

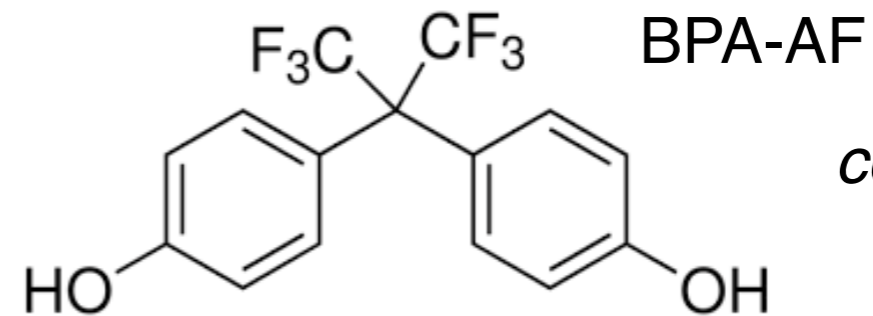
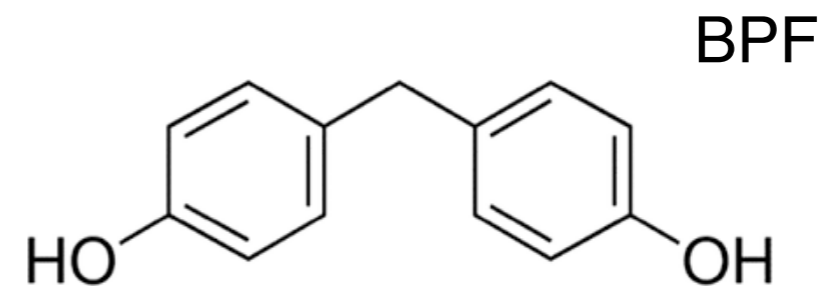
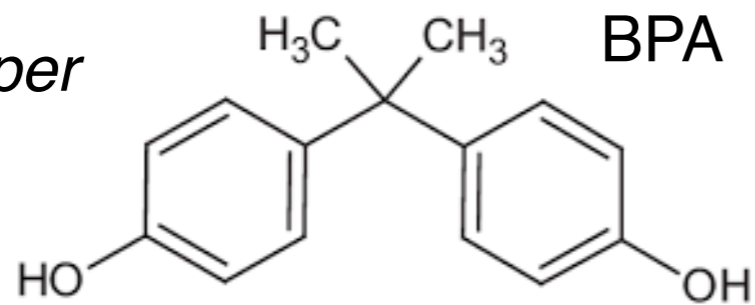
Unknown

- **Common Uses**

- > 1,000 ppm

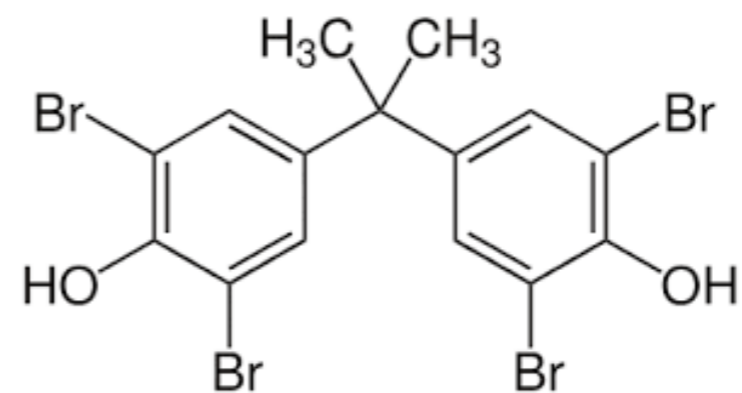
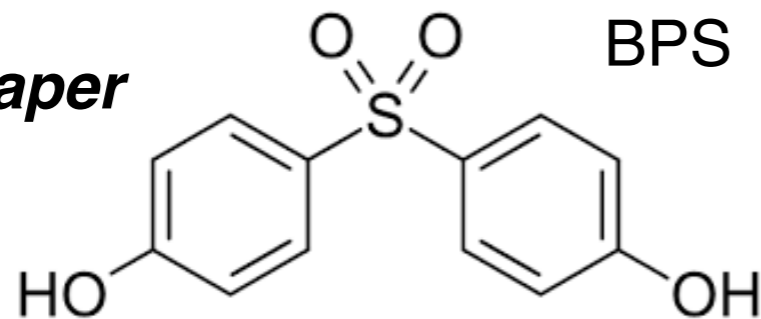
Antioxidant

Thermal paper



Low concentration in Viton

Thermal paper



Flame retardant Connectors

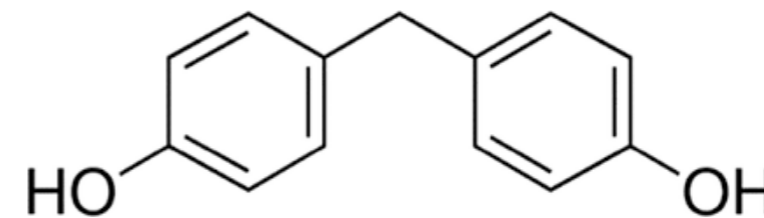
p-p'-bisphenols EU

- **Regulation**

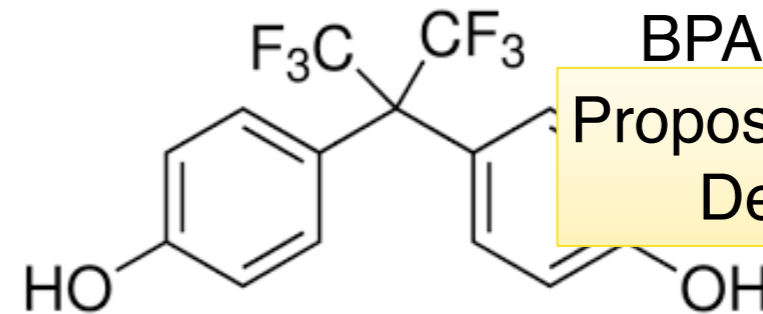
- EU

Proposed REACH SVHC
December 2025

BPF



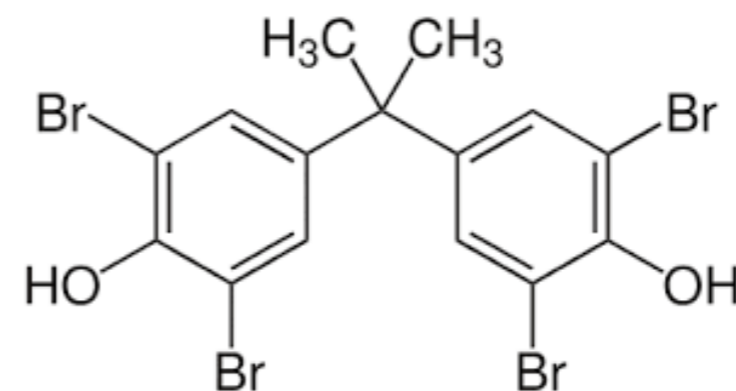
BPA-AF



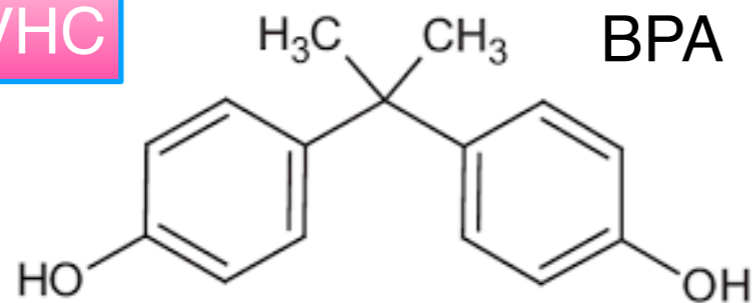
Proposed REACH SVHC
December 2025

REACH SVHC

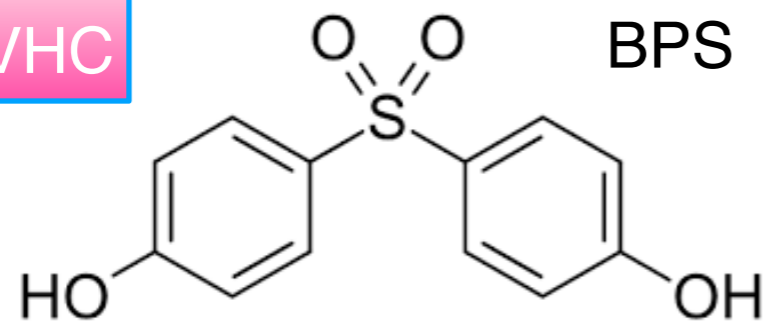
TBBPA



REACH SVHC



REACH SVHC

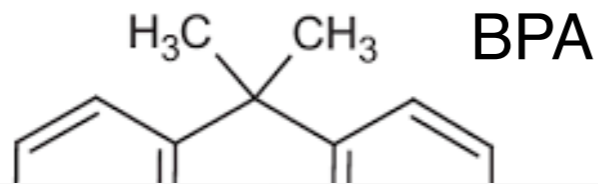


p-p'-bisphenols California

- **Regulation**

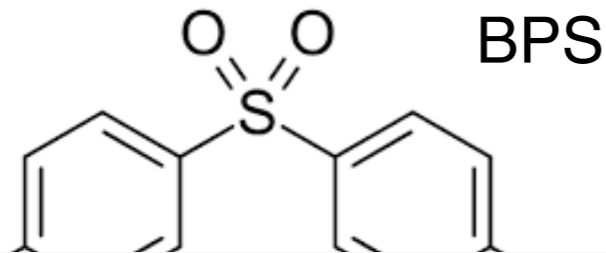
- Prop 65

Prop 65



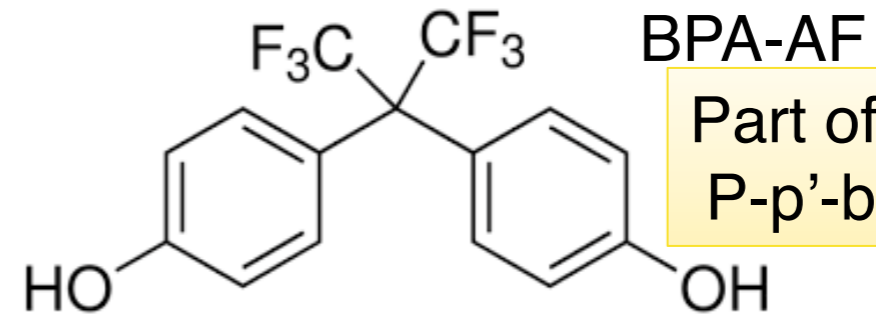
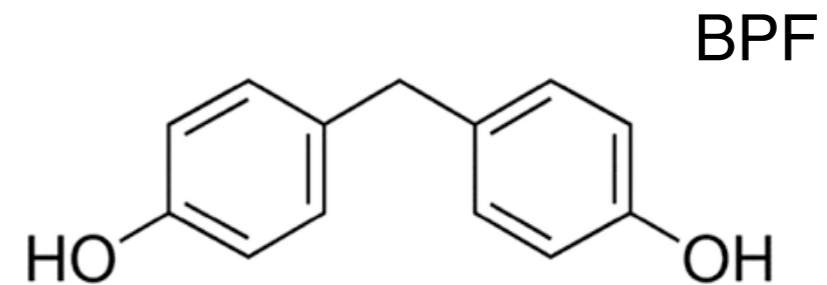
255 notices per month

Prop 65

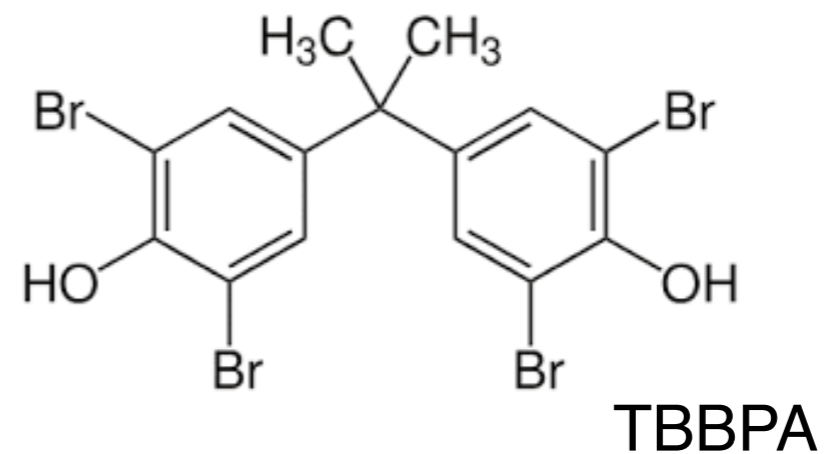


468 notices per month

Part of [proposed](#)
P-p'-bisphenols



Part of [proposed](#)
P-p'-bisphenols



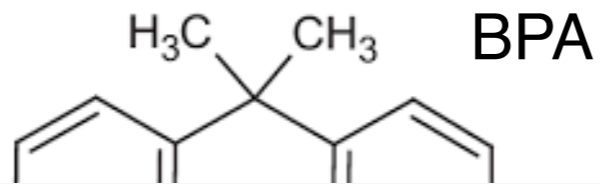
Prop 65

p-p'-bisphenols California

- **Regulation**

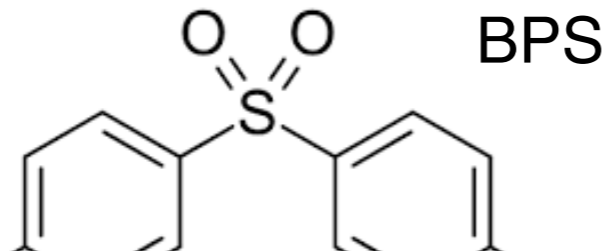
- Prop 65

Prop 65



255 notices per month

Prop 65



468 notices per month

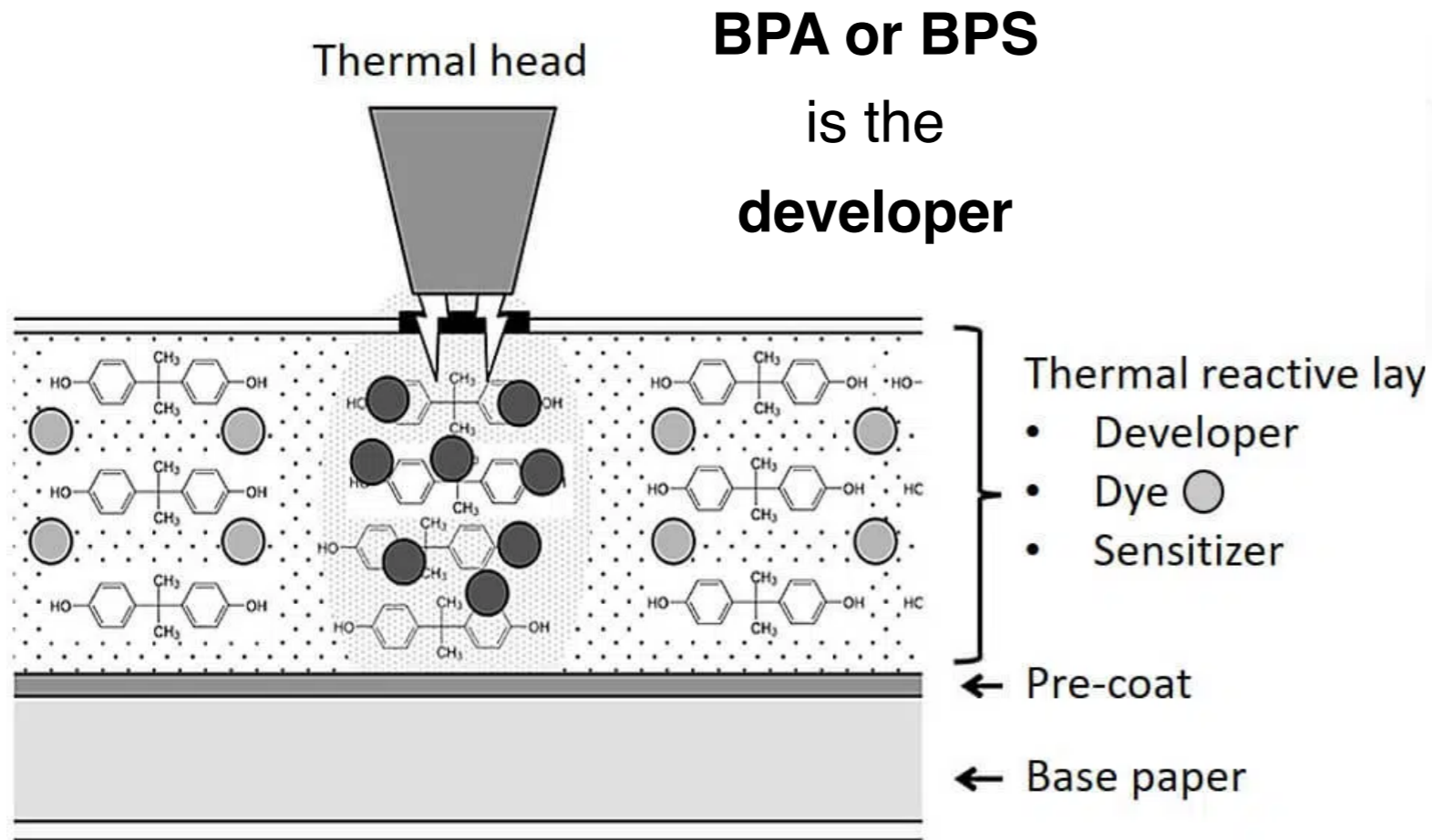


Thermal Receipts



Thermal Labels

p-p'-bisphenols California



Thermal Receipts



Thermal Labels

They are the **WHITE** part of the label

EMRT & AMRT

- **EMRT (Extended Minerals Reporting Template)**

- Covers minerals in scope of the EU Batteries Regulation Due Diligence: **cobalt, lithium, nickel, graphite**
- Also covers **copper** and **mica**

- **AMRT (Additional Minerals Reporting Template)**

- Used for reporting minerals not part of the CMRT or EMRT
- Especially useful for **critical minerals** such as **aluminum, silicon, REEs**
- Ad Hoc template where companies can request data on up to 10 minerals of their choosing

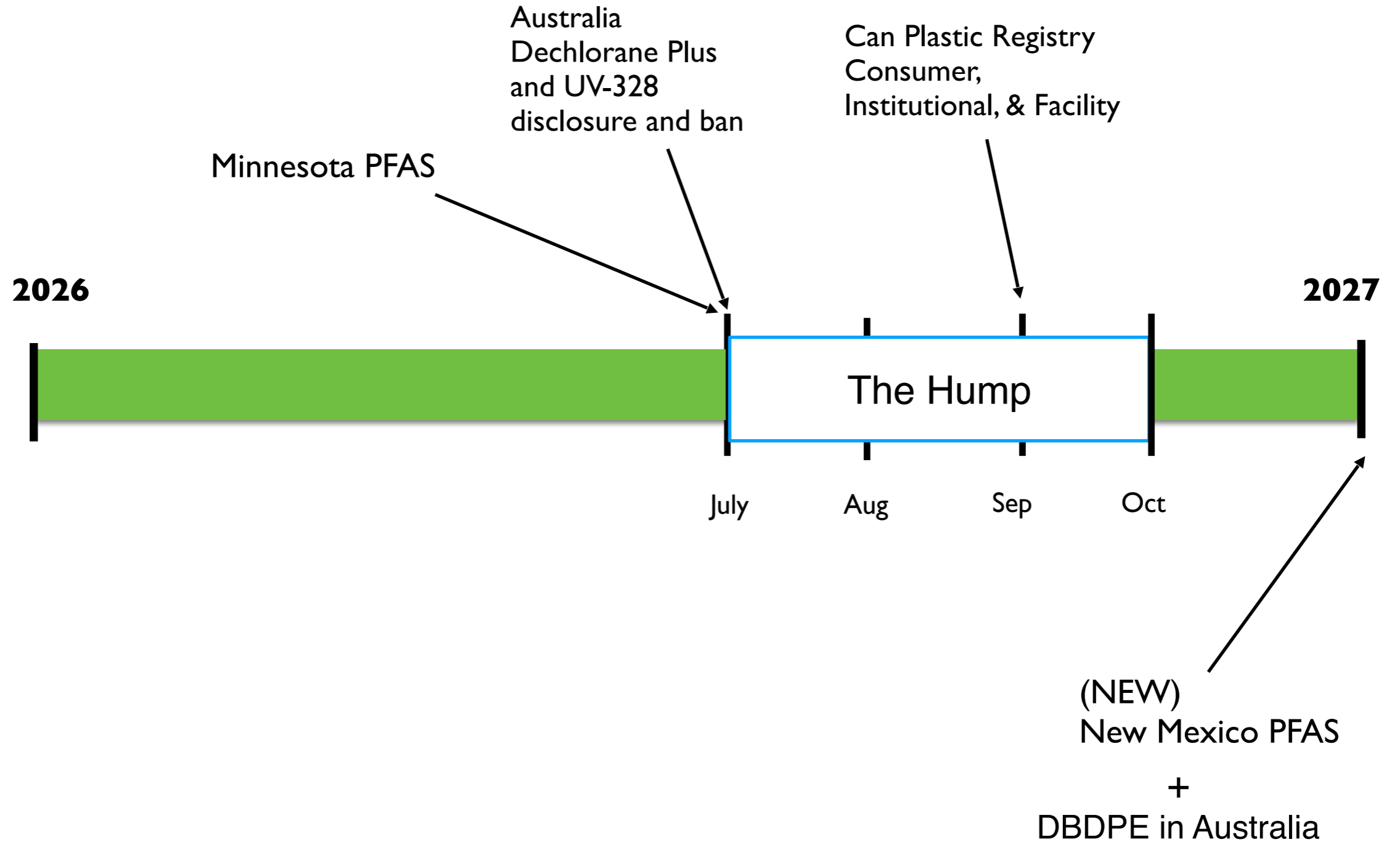


Critical Minerals / Rare Earths

- **Lots of interest in critical minerals / rare earths**
- **Claigan approach**
 - Risk by mineral (supply chain and price)
 - Part types commonly containing minerals

Mineral Name	Supply Chain Concentration Risk (Refined Output)	Price Disruptions	Reason for Disruption	Common Applications	Impacted Products
Aluminum	High	Minor Disruption	Aluminum prices saw a minor increase (~15%) in the spring of 2024 due to interruptions in bauxite production in Guinea. Since then, aluminum prices have remained largely the same, with the price hitting its peak in Q1 of 2025 after the United States announced a 25% tariff on all steel and aluminum. The price of aluminum has stayed in a similar range since this peak, and the tariffs have increased to 50%, except for aluminum products from the UK for which remain at 25%.	All Industries	Aluminum Electronics
Barite (Barium)	Moderate	No Information	Market data unavailable.	Oil and Natural Gas Collection Paints Plastics X-rays	White plastics
Beryllium	High	No Information	Market data unavailable.	Alloying Agent	Copper / Brass
Chromium	Moderate	No Information	Market data unavailable.	Steel	Stainless Steel Copper / Brass Nickel Carbon Steel Tool Steel Non-Metals
Cobalt	Very High	Significant Disruption	Since November 2023, the price of cobalt has been slowly decreasing. However, in March of 2025, the price of cobalt saw an increase of ~50% due to a cobalt export ban in the Democratic Republic of Congo. The price of cobalt has not come back down	Batteries	Batteries Stainless Steel Copper / Brass (possible) Bronze (possible) Nickel

The “HUMP” in 2026



Claigan Environmental



Consulting

- PFAS Reporting
- Plastics Reporting
- LCA
- EPDs



Testing

- RoHS
- REACH
- POP
- **Prop 65**
- Aus. IChEMS
- + everything else

Q&A



Conflict Minerals

- Conflict minerals
- EMRT & AMRT
- Critical Minerals
- Rare Earths