



The EV Battery industry and the Toxic Substances Control Act

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Meeting and Workshop by

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Shift to Electric Vehicles (EVs)



The American auto industry employs roughly two million workers.



The ongoing move toward electric vehicles (EVs) is supported with U. S. Government subsidies that could total \$220 billion by 2031.



Subsidies should carry conditions related to health and safety, environmental justice, and workers' rights.

Lithium Ion Batteries



Consist typically of electrochemical cells, each containing a positive and negative electrode, separated by a micro-porous membrane.



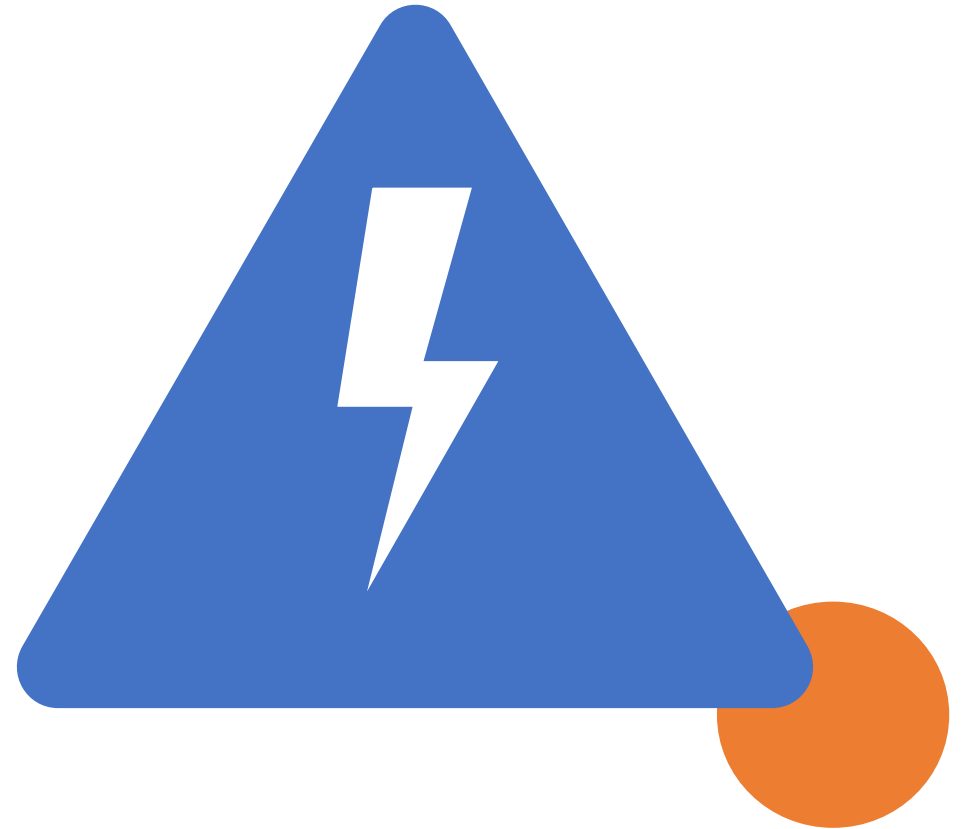
Immersed in an organic electrolyte solution containing lithium salts dissolved in organic carbonate solvents.



Oxidation (loss of electrons) and reduction (gain of electrons) reactions occur at the interfaces between the electrolyte and each of the electrodes; oxidation occurs at anodes and reduction at cathodes.

High Voltage Battery Hazards

- Electrical Shock
- Fire
- Arc Flash
- Toxic gas
- Toxic liquid
- Others – Sprain/strains, sharp edges etc.



Some of the Chemical Hazards in the EV Battery Industry

- **N-Methylpyrrolidone (NMP)** is used to manufacture the cathode. Exposure may damage unborn children, cause respiratory tract irritation, skin irritation, nausea, headache, dizziness and diarrhea.
- **Carbon nanotubes** can cause germ cell mutations and cancer
- **Lithium hexafluorophosphate (LiPF_6)** is highly flammable and forms HF (hydrofluoric acid) upon contact with water

High Voltage Battery Failure: Toxic Releases

- Internal failure of a high voltage Lithium-ion battery can result in fire and/or release of
 - Hydrogen fluoride,
 - formaldehyde,
 - sulfur dioxide, and/or
 - nitrogen dioxide



Toxic Substances Control Act (TSCA)

In 1976 TSCA gave EPA authority to regulate chemicals presenting unreasonable risk to health and/or environment.

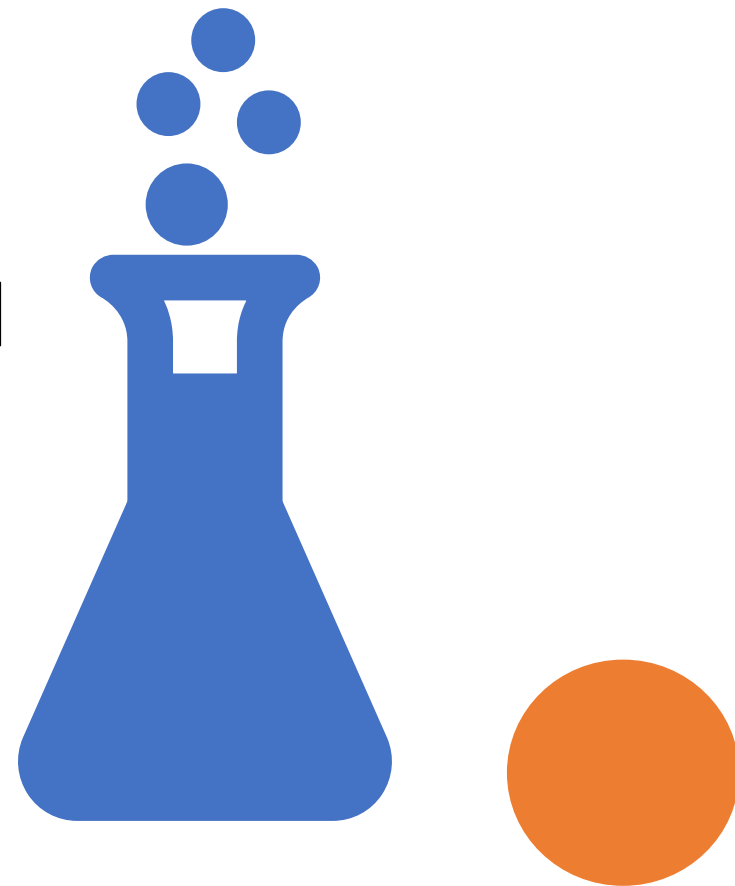
Lautenberg Chemical Safety Act, passed in 2016, amends TSCA to require risk evaluations of existing chemicals and risk management rules that eliminate unreasonable risks.

EPA's responsibility includes evaluating risks to workers, who are named in the Lautenberg Act as a "potentially exposed or susceptible subpopulation."

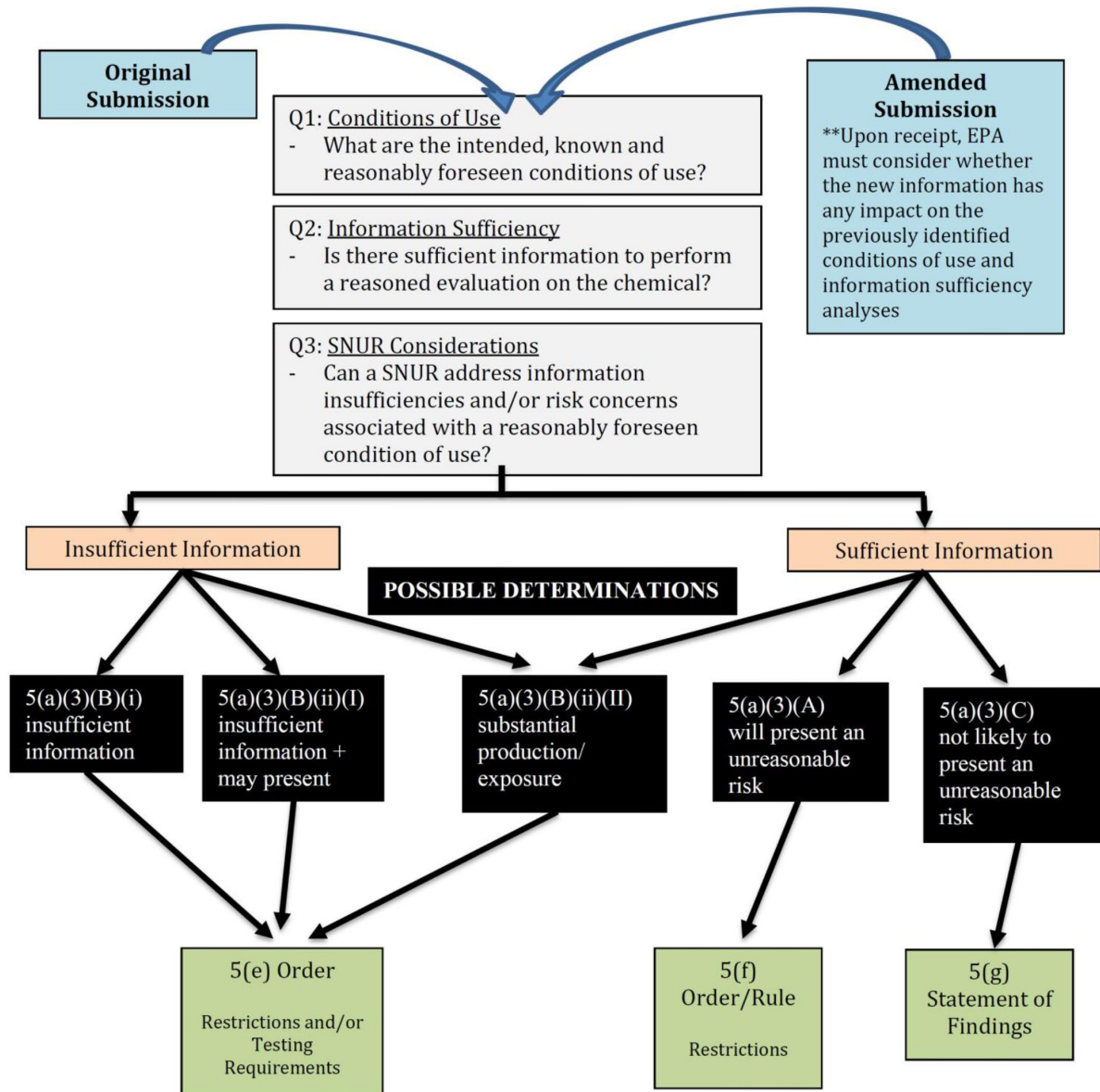
EPA is required to evaluate all parts of a chemical's lifecycle, which means evaluating risks to first responders as well as to manufacturing workers.

TSCA Coverage of EV Battery Chemicals

- NMP is regulated under the TSCA existing chemicals program
- According to the EPA regulatory agenda, a risk management rule for NMP is expected this month (date targets frequently missed)
- Carbon nanotubes and many formulations that include LiPF_6 are regulated under the TSCA new chemicals program



TSCA New Chemicals Program



Source: USEPA

https://www.epa.gov/sites/default/files/2021-04/documents/new_chems_working_approach_-_12.20.19_final_with_disclaimer.pdf

Confidential Business Information (CBI)



It is difficult to know whether a particular employer has submitted a new chemical application because the submitter's name can be CBI



It is difficult to know what chemical is the subject of the application because the chemical name and CAS# can be CBI



It is therefore difficult to know whether a consent order, which specifies workplace health and safety requirements exists and/or covers a particular workplace.

Confidential Business Information (CBI)

- Workers can be working with a chemical that has a legally binding consent order specifying health and safety procedures, but neither they nor their representatives know that the order exists or what is in it.
- The content of the order is negotiated between EPA and the submitter with no input from any other stakeholders including workers, their representatives or fence line communities

Take Home



EV Batteries may be climate-friendly, but they have many hazards



The transition to EVs must not leave workers in more hazardous jobs with fewer rights



The TSCA new chemicals program must be made more transparent so that workers, their representatives and fence line communities can know what the exposures are and how to protect themselves.

UAW Thanks NIEHS for

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