18005: Air Force Risk Management Approach to REACH

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Executive Summary

- **EU's Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation applies to industry differently than the US DoD**
  - Industry places products into commerce – DoD does not
  - To participate in the European marketplace, companies themselves or their importers/representatives in Europe must comply with REACH
- **Nevertheless, REACH creates a regulatory environment and supply chain risks that DoD must manage**
- **AF uses a data-driven approach to manage risks from REACH; otherwise**
  - Tough to determine right management priorities from among innumerable potential risks
  - Driven to manage dramatic "worst case scenarios" – without understanding probabilities
- **Air Forces Europe REACH-related risks currently appear low and manageable**
  - Types of maintenance AF performs in Europe very different from US
  - USAFE REACH chemical usage is small (~1%) compared to overall AF chemical usage
  - 99% of USAFE chemical usage avoids REACH restriction/authorization requirements
  - Substitute evaluation and implementation underway for most of the products that don't
  - Other REACH-related risks appear to have achievable administrative solutions

Industry - DoD REACH Compliance Differences

- **2010 DoD REACH Strategic Plan indicates the differences between DoD and industry**
  - **“As an EU regulation, REACH is not a compliance issue for the DoD”**
  - **“For purposes of REACH, DoD does not import equipment or supplies into the EU when it is providing such items in direct support to its forces stationed in the EU nor when transporting such items through the EU on military transportation”**
- **However: NATO SOFA Common Article II requires “respect” for host nation (HN) laws**

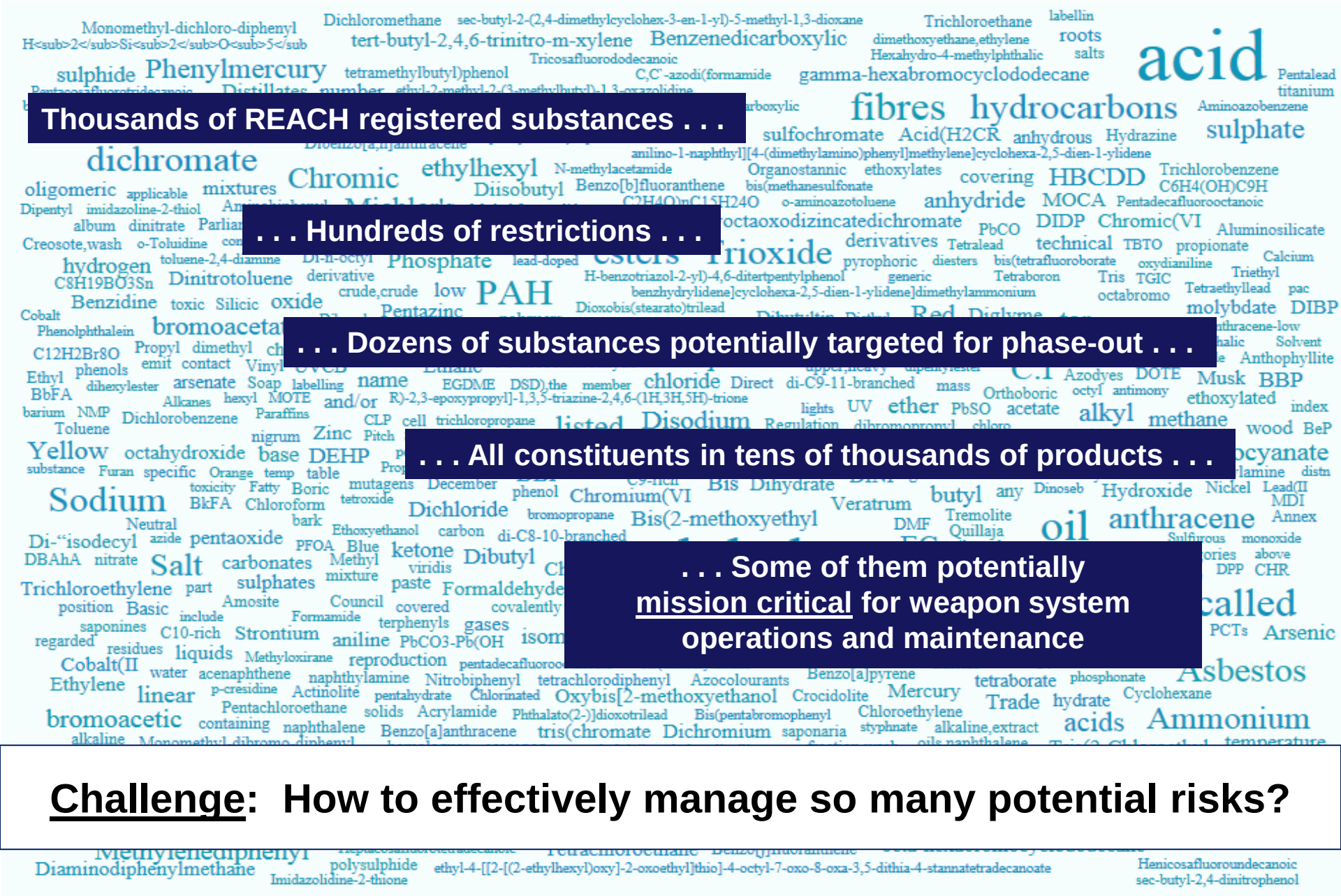
Background
DoD REACH Risk Management

- **Although REACH may not be a DoD compliance requirement, the 2010 DoD REACH Strategic Plan identifies risks that DoD must manage**
  - **Supply chain**
    - Product availability
    - Product reformulation
    - Challenges with shipping certain products *between* bases in Europe
  - **Interoperability with NATO partners (they must comply with REACH)**
  - **Foreign military sales (FMS)**
- **2010 Plan establishes a monitoring and risk management framework**
- **Defense Security Cooperation Agency's 2015 REACH FMS policy memo is aligned with the 2010 Plan**
- **The AF's REACH chemical risk management approach is also based on the framework in 2010 DoD REACH Strategic Plan**

AF REACH-related Risk "Heat Map"

AF RISK	PRIMARY DRIVERS	SOLUTION STATUS
USAFE usage of chemicals that REACH "Restricts" or "Authorizes" in EU market	REACH	Completed 20-month analysis; Established clear targets to minimize risks; Monitoring regulatory and marketplace changes
Requirement to have current, accurate Safety Data Sheets (SDS) associated with hazardous products	UN Globally Harmonized System (GHS), HAZCOM	~30% GHS SDS accuracy at AF bases *worldwide* – not just USAFE; Implementing fixes & monthly metrics
Proper classification, labeling, packaging (CLP) and manifesting for intra-base commercial shipments of HAZMAT in EU	EU CLP Regulation; other agreements, laws, regulations	USAFE CDGA implementing management/administrative measures; HAF HMMP team offering data assist
Tailored labeling and HAZCOM procedures for local national workplaces	CLP, DoD HAZCOM, International Agreements, REACH	USAF School of Aerospace Medicine and HAF HMMP team developing tailored USAFE GHS Factsheet

Overview of the AF Data-Driven Methodology



Challenge: How to effectively manage so many potential risks?

Overview of the AF Data-Driven Methodology

- Use data to identify risks
- Use risk management to prioritize resources and response
  - Risk assessment utilizes data on
    - Quantities of each chemical used in Europe
    - “Sunset dates” for Annex XIV
    - REACH restrictions that specifically apply to AF uses
  - Develop and implement risk mitigations
    - Minimize and if possible, eliminate, identified risks through substitution
    - Monitor regulatory and market developments; work with military and industry partners to influence developments
    - “Risk acceptance” is not the preferred outcome but is an option for DoD risks that cannot be eliminated
- Enterprise Environment, Safety, and Occupational Health Management Information System (EESOH-MIS) and Enterprise Supply System (ESS)
  - Quantity and constituent data for most chemicals used in USAFE
  - Individual shop locations using products

Overview of the AF Data-Driven Methodology

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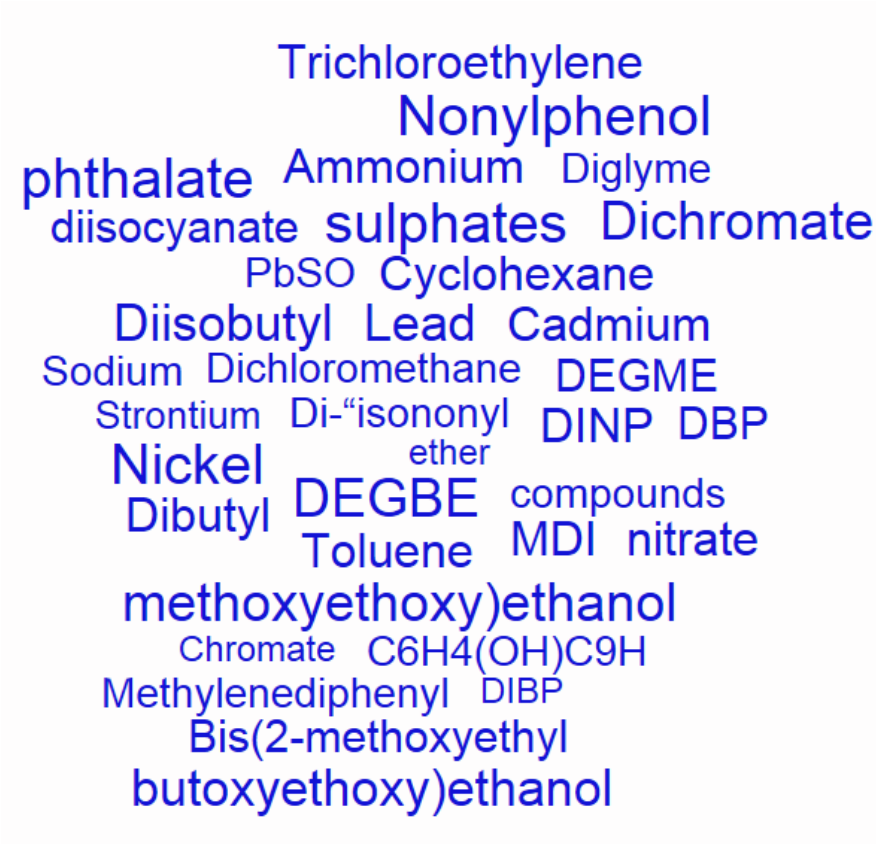
. . . into a list of top priority chemicals . . .



Overview of the AF Data-Driven Methodology

. . . . . and then enable narrowing the focus to 6 chemicals that may currently benefit from risk mitigation actions

Diisobutyl phthalate (DIBP)
Strontium Chromate
Dibutyl phthalate (DBP)
Bis(2-methoxyethyl) ether (Diglyme)
Trichloroethylene
Sodium Dichromate

. . . . . The following slides review these risk assessments in more detail . . .

Details on USAFE REACH Chemical Priorities

Top 20 Annex XIV and Annex XVII Regulated Chemicals, by Weight
1 January 2014 - 25 August 2015

Name	Authorization (Annex XIV)	Restriction (Annex XVII)	Sunset Date (for Annex XIV)	USAFE Pounds Used *(20 months)*
Lead and its compounds		X		85,602
2-(2-butoxyethoxy)ethanol (DEGBE)		X		4,377
Toluene		X		4,247
2-(2-methoxyethoxy)ethanol (DEGME)		X		2,900
Diisobutyl phthalate (DIBP)	X		21-Feb-15	2,786
Strontium Chromate	X		22-Jan-19	913
Nickel		X		330
Cadmium		X		178
4,4'-methylenediphenyl diisocyanate		X		171
Dibutyl phthalate (DBP)	X	X	21-Feb-15	120
Dichloromethane		X		106
Lead sulphates: (a) PbSO4		X		82
Ammonium nitrate (AN)		X		62
Bis(2-methoxyethyl) ether (Diglyme)	X		22-Aug-17	54
Nonylphenol C6H4(OH)C9H19		X		50
Cyclohexane		X		39
Di-"isononyl" phthalate (DINP)		X		36
Trichloroethylene	X		21-Apr-16	11
Sodium Dichromate	X		21-Sep-17	9
Methylenediphenyl diisocyanate (MDI)		X		8

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REACH Annex XVII Restrictions do not apply to current USAFE uses of these chemicals

AF will continue monitoring – See back-up slides for details

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DIBP:

USAFE has likely already met REACH requirements

Only USAFE weapon system requirement was Click-Bond CB200 (<1% of usage), reformulated in 2013

Remaining 99% for civil engineering construction applications using EU-manufactured products that must comply with 2015 REACH authorization requirements

- These EU products likely reformulated
- Civil Engineering confirming that reformulations meet requirements

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Strontium Chromate

Mitigation actions underway to reduce risk prior to 2019 sunset

- Continuing to implement already identified subs for MIL-PRF-23377 aircraft and ground equipment primers – **95%** of usage
- Continuing to work with AF PMs and chemical manufacturers to identify replacements for six additional primer products, two sealant/joint compound products, and one fuel tank coating **(5%)**

Aiming to eliminate use in USAFE by 2019

- If elimination not possible, should be able to reduce usage to <20 pounds per year in two products at three installations
- If necessary, reductions would enable the implementation of other available procedural mitigations (e.g. transfer infrequent aircraft work to CONUS or ship products via DoD-only channels)

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4,4'-methylenediphenyl diisocyanate		X		171
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DBP

>98% of USAFE usage is for a non-combat ground vehicle paint in Turkey - EU REACH does not apply

<2% (**1.3 pounds**) is a single possibly obsolete or reformulated product: a single adhesive/epoxy compound

May downgrade to "meets REACH requirements" after confirming product has been reformulated/replaced

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Diglyme

Mitigation actions underway to reduce risk prior to 2017 sunset

- **100%** of USAFE usage is Fluoroelastomer Aircraft Coatings from a single manufacturer
- Working with AF PMs and company to develop action plan
- First priority: try to reformulate to eliminate usage in USAFE
  - Only two shops use this product
  - Average usage: One 8-pound kit per month per shop (Diglyme is 25% of the kit weight)

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Trichloroethylene

Recommended mitigations to reduce risk associated with 2016 sunset

- **100%** of USAFE usage is for ground vehicle maintenance
  - Non-trichloroethylene alternatives are available for these products
  - Confirming that usage is not required by Technical Orders (T.O.)
- If not required by T.O.s, USAFE should consider requiring fleet vehicle maintenance shops to buy non-trichloroethylene products
- If required by T.O.s, work with PMs to change T.O.s

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Sodium Dichromate

Mitigation actions underway to reduce risk prior to 2017 sunset

- **100%** of usage is for a single aircraft windshield and canopy sealant product
- A chromate-free version is available from the same manufacturer
- Working with aircraft PMs to qualify the alternative

Avoiding USAFE Impacts – Risk Management Summary

- **99% of USAFE chemical usage meets current and upcoming REACH requirements**
  - **Chemical availability risks currently minimal**
  - **Action plans in place to further reduce risk**
  - **HAF will continue to work with AFCEC and USAFE to monitor REACH changes**

Chemical	20 Month Usage	Sunset Date	# Prod-ucts	# Bases	Action Plan Summaries	Probability of Eliminating USAFE Usage
DIBP	2,786	21-Feb-15	1	1	USAFE civil engineering check performance of reformulated construction products	VERY LIKELY
Strontium Chromate	913	22-Jan-19	10	7	Continue implementation of 23377 primer replacement (95% of USAFE usage); Fuel tank coating is challenging to reformulate	POSSIBLE
DBP	120	21-Feb-15	2	2	Only 1 pound subject to EU REACH; Confirming product has been replaced	VERY LIKELY
Diglyme	54	22-Aug-17	1	2	Evaluating possibility of reformulating a specialty aircraft coating by one company	POSSIBLE
Trichloro-ethylene	11	21-Apr-16	2	4	Common automotive products, commercially available replacements	VERY LIKELY
Sodium Dichromate	9	21-Sep-17	1	3	Non-chromate alternative already available from same company, evaluating substitution	VERY LIKELY