



Charge Question 2 – Human Health Effects Overview: Human Health Effects Research

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- Large number of PFAS in commerce and the environment
- Emerging consensus on the need to use grouping- or category-based approaches to assess and address potential PFAS toxicity.
- No clear consensus method for categorizing PFAS
- ORD researchers are evaluating categorizing PFAS for human health risk assessment (and risk mitigation purposes).
- **Advancing the Science Needed to Assess Human Health Risks from PFAS**
 - **Curating existing scientific information**
 - **Conducting toxicity testing**
 - **Developing human health toxicity assessments**

Most PFAS have limited or no toxicity data to inform hazard assessment

CURATE EXISTING DATA

- Hazard
- Dose response
- Chemical and physical properties
- [CompTox Chemistry Dashboard](#) – >10,000 PFAS
- [HERO Database](#) – >200,000 PFAS references
- Systematic evidence maps for ~150 PFAS



GENERATE NEW DATA

- ✓ Created chemical library of 480 PFAS samples
- ✓ Selected 150 PFAS to represent structural diversity of PFAS
- Testing PFAS using a battery of toxicological and toxicokinetic New Approach Methods (NAMs)



- Group PFAS into a smaller number of categories based on structural, toxicological and toxicokinetic similarity
- Prioritize PFAS for further toxicity testing and assessment



Human Health Toxicity: Assessments

Toxicity values are needed to inform risk analysis, risk management decisions and risk communication

	PFAS	Chemical Formula	Toxicity Value?
CARBOXYLIC ACIDS Increasing chain length ↓	PFBA	C_3F_7COOH	Draft
	PFHxA	$C_5F_{11}COOH$	FY22*
	PFOA	$C_7F_{15}COOH$	Yes (2016)
	PFNA	$C_8F_{17}COOH$	FY22*
	PFDA	$C_9F_{19}COOH$	FY22*
SULFONIC ACIDS Increasing chain length ↓	PFBS	$C_4F_9SO_2OH$	Yes (2021)
	PFOS	$C_8F_{17}SO_2OH$	Yes (2016)
	PFHxS	$C_6F_{13}SO_2OH$	FY22*
GEN-X →	HFPO-DA	$C_3F_7-O-C_2F_4COO^-$	2021

← OW-led updates underway

← OW-led

* Estimated timing for draft assessment; [IRIS Program Outlook](#)

Breakout Room 1 – Toxicity Testing

- New approach methods – toxicity
- New approach methods – toxicokinetics
- *In vivo* toxicity testing
- PFAS and multimorbidity: Using electronic health records to probe systemic effects

Breakout Room 2 – Assessments

- Human health toxicity assessment for PFBS
- Draft IRIS assessments for PFBA, PFHxA, PFDA, PFHxS, PFNA
- Systematic evidence maps to characterize available evidence

Please comment on the implementation of ORD's research on the human health effects from PFAS. In addition, what suggestions and recommendations can the Executive Committee offer on common category characteristics that would maximize the utility of the resulting PFAS groupings for the broadest set of decision contexts?