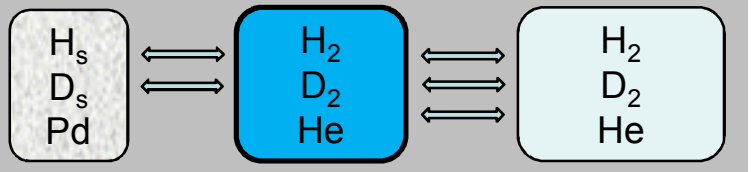
SAND2018-0509PE

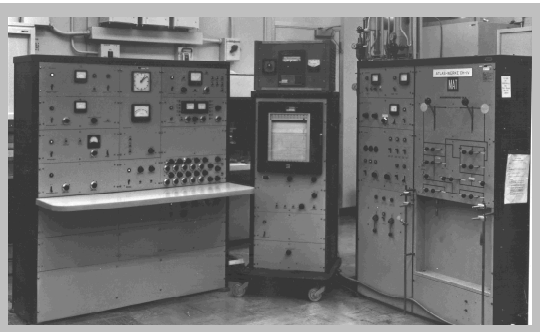


$$X_0[H_2] = X[H_2] + \tfrac{1}{2}X[HD] + \tfrac{1}{2}X[HT]$$

$$X_0[D_2] = X[D_2] + \tfrac{1}{2}X[HD] + \tfrac{1}{2}X[DT]$$

$$X_t[T_2] = X[T_2] + \tfrac{1}{2}X[HT] + \tfrac{1}{2}X[DT]$$

$$K_{HD} = \frac{X[HD]^2}{X[H_2]\cdot X[D_2]} \qquad K_{HT} = \frac{X[HT]^2}{X[H_2]\cdot X[T_2]}$$



IMOG - Gas Technology Subgroup

2017 Status Report

Jessica A. Bierner, GT-IMOG President

January 24th - 25th 2018

2017 Gas Technology Meeting

- Date/Location:

  May 8th – 11th, 2016. Pacific Northwest National Labs, Tri-cities, WA.

- Participation:
  - 30 attendees, with representatives from all sites:
    KCNSC, LANL, LLNL, PNNL, Pantex, SNL (NM & CA), SRS, SRNL, AWE, and Y-12
  - 12 presentations, 3 Round Table Discussions, and Tour of the Radiochemical Processing Laboratory (RPL).

- Notable Complex-wide Issues Discussed:
  - Passivation of Tritium cylinders – coatings, supplier issues, and update on current research progress
  - Worldwide Helium Shortage Update
  - Gas Standard vendors and He suppliers

Benefits

- Tangible
  - Direct communication and networking between similar working groups at the various NWC sites
  - Discussion of New Technologies and Capabilities that can be shared throughout the complex
  - Sharing of Lessons Learned to prevent similar issues and instrument problems

- Intangible
  - Understanding of different NWC activities and capabilities
  - Awareness of different methods available for problem solving
  - Awareness of emerging issues affecting gas analysis/technology
  - Having a network of experts to approach for advice/opinions

Potential Actions

- Consider collaboration with Tritium Focus Group for Round Robin analysis of gas standards at all willing complex sites in which gas analysis techniques are performed.
  - To be led by Chandra Marsden at LANL.
  - This IMOG would be a great host for this round robin as all sites have some gas measurement capabilities while not all sites have tritium capabilities.
  - Hope to engage and start up this spring.
  - Would learn about equipment variabilities and site to site differences with measurement techniques and uncertainties.

Subgroup Evaluation

- The Gas Technology group has been quite active for at least the past decade
- Little to no problem finding meeting sites and hosts
- Funding changes with NTESS may cause some issues with funding the visit at SNL sites.
- Generally 10 to 30 meeting attendees, with up to 2 visitors from AWE

- Recommend continuation of this subgroup

2018 Meeting Plan

- Date/Location:
  - May 15th – 17th, 2018. Oak Ridge National Labs, TN
- Host: Oak Ridge National Labs
- Final assignment for next meeting will be made by March 15th 2018.
- Subgroup Executive Committee assignments will be rotated at this meeting for all three positions, and as such, a new secretary will need to be appointed at that time.
- Facility tour to be determined upon site availability
- Potential merging with Tritium Focus Group as with the 2017 meeting- higher attendance and participation expected