

# ***H<sub>2</sub>S in Crude Methods Survey Proposal Introduction***

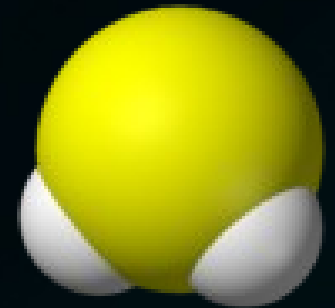
*Presented to the  
Crude Oil Quality Association*

*Houston, TX  
October 22, 2009*



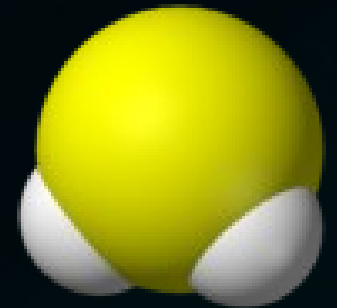
# *H<sub>2</sub>S Background*

- Current crude marketing, engineering knowledge bases are inadequate, inaccessible
  - Public domain, MSDS, private data lacking
- General knowledge is filled with assumptions and misconceptions
  - “the concentration of H<sub>2</sub>S determines the relative sweetness of crude oil”
  - “The primary and essential difference between regular crude oil and "sour" crude oil is the presence of a gas known as hydrogen sulfide (H<sub>2</sub>S)”



# *Canadian H<sub>2</sub>S Experiences*

- Canadian crudes are going further afield
  - Opening new, different markets
  - New markets are unfamiliar with Canadian crudes
- Recent challenges
  - Blended crudes and buffer selection
  - Moving & storing crudes (tanks, trucks, rail)
  - Barging crudes (marine shipping requirements)
  - H<sub>2</sub>S scavenging requirements (eg. vapour recovery, chemical mitigation)



# *H<sub>2</sub>S Proposal*

## ■ *Observations & Hypothesis*

■  $H_{2}S_{(vap)} \neq k_a * H_{2}S_{(liq)}$

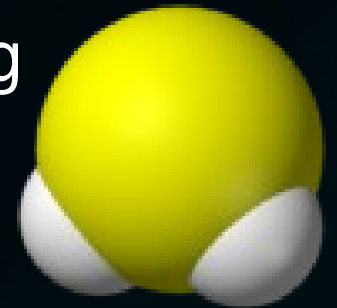
■  $H_{2}S_{(vap)} = f(H_{2}S_{(liq)}, P, T, \text{composition, agitation, ...})$

■ Need accurate  $H_{2}S_{(liq)}$  to determine  $H_{2}S$  vapor potential

## ■ *Purpose & Goal*

■ To compare current test methods (ASTM D5705 and UOP-163) & evaluate alternate method (IP570)

■ To produce a framework for testing that provides the most accurate  $H_{2}S$  content while minimizing error and technician variability



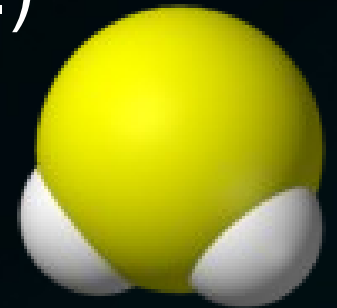
# *Proposed Players & Milestones*

- Alberta Research Council ([www.arc.ab.ca](http://www.arc.ab.ca))



- Conducting work, maintaining standards
- Published report

- Joint project management – COQA/CCQTA
- ARC currently preparing samples for preliminary testing of IP570 instrument
- Gather support during 3Q2009 in Canada and US for joint effort (financial, resources, ...)
- Project scope definition – Feb 11, 2010



# *Next Steps*

- Begin conversations & evaluate corporate interest in reliable H<sub>2</sub>S measurement, prediction
  - Feedback your findings to Harry Giles, COQA and/or Phil Heaton, CCQTA
- Evaluate resource availability
  - Sample points, crudes of interest, potentially piggyback on existing cargo surveying & sampling, other financial and in-kind support
- Come prepared to the joint COQA/CCQTA meeting in Feb 2010

