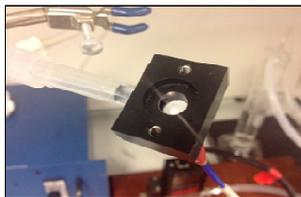
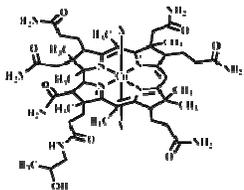


# Advancing Respiratory Personal Protective Equipment through ESLI Research – FY15 (927PP18\_ESLI)



## Objectives

- Develop an inexpensive optochemical sensor to detect STEL concentrations of hydrogen cyanide and hydrogen sulfide gases
- Miniaturize existing sensor and associated electronics able to be associated with canister and/or respirator using LED and photodiode technology
- Simulate embedding the developed sensor in canister simulator

## Midyear Accomplishments

- Assembled experimental setup in hood; sensor holder
- Made internal and external contacts for research assistance and collaboration
- Successfully shown proof of concept for rapid detection (within 10 seconds) of appropriate concentrations for both hydrogen cyanide and hydrogen sulfide on inexpensive paper
- Demonstrated sensor response to various %RH (25%, 50%, 85%)
- Demonstrated real-time sensor response to hydrogen sulfide breakthrough with cartridges using NIOSH STP-CBRN-0305 compared with downstream detector used in the STP

## Applicable Standards related activities

- TEB-CBRN-STP-0303
- TEB-CBRN-STP-0503

## Key Partners

- WVU Department of Chemistry
- UCSD Department of Chemistry

## Stakeholders

- None

## Outputs

- Anticipate publications in chemical literature (0 to date, 2 in writing stage)
- Present research at various academic seminars and conferences
- Develop test methods for testing/approving ESLI

## Outcomes

- Project data may allow manufacturers to develop similar sensors using various encapsulating compounds for active colorimetric ESLIs
- Project data may be used by NIOSH to develop standard procedures for chemical testing of ESLIs using similar experimental design

Updated: 20 Feb 2015