

REFERENCES AND OTHER BACKGROUND MATERIALS PROVIDED BY CAAC-AMMONIA PANEL MEMBERS DURING THE JULY 14-16, 2014 MEETING

A reference provided by Dr. Allan Stern

Konturek SJ, Konturek PC, Brzozowski T, Stachura J, Zembala M. 1996 Gastric mucosal damage and adaptive protection by ammonia and ammonium ion in rats. *Digestion*. 57(6):433-45.

Information provided by Dr. Scott Bartell

Table 4-1 from the National Research Council. *Review of EPA's Integrated Risk Information System (IRIS) Process*. Washington, DC: The National Academies Press, 2014.

References provided by Dr. Foster

1) Animal model demonstrating behavioral responses in rodent model (naked mole-rat) that lack neuropeptides that are associated with signaling of chemical irritants by C-type trigeminal nerve fibers.

La Vinka, PC, and A Brand, (2009), Extreme tolerance to ammonia fumes in African naked mole-rats: animals that naturally lack neuropeptides from trigeminal chemosensory nerve fibers, *J Comp Physiol A*, 195, 419-427.

2) Small cohort, human based evaluation of association of trigeminal influences on response to ammonia exposure in human subjects.

Petrova, M, J Diamond, B Schuster, and P Dalton, (2008) Evaluation of trigeminal sensitivity to ammonia in asthmatics and healthy human volunteers, *Inhal Toxicol*, 20, 1085-1092.

3) Epidemiology type of study utilizing the ECHRS II cohort with exposure of hospital nurses to cleaning solutions. The experimental design of this study was different than many of the refs already reviewed by EPA, in that it's the 1st study that I am aware of that evaluated a large cohort for risk of "new-onset" asthma in workers occupationally exposed to cleaning solutions. To my knowledge, previously reviewed refs had only identified risks of adverse outcomes in asthmatics (previously diagnosed), whereas this report demonstrated risk of initiation of adult asthma syndrome in these workers.

Mirabelli, MC, J-P Zock, E Plana, et al, (2007), Occupational risk factors for asthma among nurses and related healthcare professionala in an international study, *Occup Environ Med*, 64, 474-479.

4) A recent reference that EPA, due to recent publication release (2014) would not have been able to report to the committee as yet and is related to a unique experimental design, wherein nitrate fertilizer workers were followed for parenchymal change in an index of functional lung homeostasis (DLco, pulmonary diffusing capacity) longitudinally (3 yr) in time.

Hovland, KH, M Skogstad, B Bakke, O Share, and K Skyberg, (2014), Longitudinal decline in pulmonary diffusing capacity among nitrate fertilizer workers, *Occup Med (Lond)*, 64, 181-7.

5) Epidemiology type of study showing association of risk of colon cancer (of unknown etiology) in a sizable cohort with information related to occupational histories. I am not aware of a similar human data base showing potential link of colon cancer to occupational exposure to chemicals such as ammonia refrigerant.

Fang, R, N Le, and P Band, (2011), Identification of occupational cancer risks in British Columbia, Canada: a population-based case - control study of 1,155 cases of colon cancer, *Int J Environ Res Public Health*, 8, 3821-3843.

Information provided by Dr. Dourson:

Here are two links to Klimisch scoring. The Wiki link gives a nice overview. The ECHA link shows its use in a weight of evidence scheme.

- http://en.wikipedia.org/wiki/Klimisch_score
- http://echa.europa.eu/documents/10162/13655/pg_report_weight_of_evidence_en.pdf

Reference provided by Dr. Abby Li

Satpute R¹, Lomash V, Hariharakrishnan J, Rao P, Singh P, Gujar N, Bhattacharya R. 2014. Oxidative stress and tissue pathology caused by subacute exposure to ammonium acetate in rats and their response to treatments with alpha-ketoglutarate and N-acetyl cysteine. *Toxicol Ind Health*. 30(1):12-24. doi: 10.1177/0748233712448117. Epub 2012 Jun 1.

A recent publication provided by Dr. I. David Weiner

Showing chronic ammonium chloride oral administration led to significant impact on skeletal bone and bone microarchitecture (Gasser, et al., *American Journal of Physiology Renal Physiology* 306: F517–524, 2014).