Ammonia Contamination: Where does it end?

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The Good, The Bad, The Ugly

Properties

- natural compound – production costs low NH3
- superior thermodynamic properties - heat transfer characteristics of ammonia can be 2-3 times as higher – more efficient, smaller equipment costs, less electrical costs per ton. 10 -20% less to install
- ammonia is environmentally compatible. It does not deplete the ozone layer and does not contribute to global warming

Properties

- Specific gravity of the liquid (water=1) 0.619
- Specific gravity of the gas (air=1) 0.588
- Flammable limits in air 16-25%
- Liquid ammonia will expand by 850 times when evaporating
- Boiling Point -28°F (-34 C)
- because ammonia has a tremendous affinity for water, it reacts immediately with the humidity in the air and may remain close to the ground. (Eyes, nose, throat)
- Ammonia combines with water to form ammonium hydroxide. Caustic corrosion

Coverage

- Except as indicated in the EXCLUSIONS…..we will protect property covered by this agreement against direct physical loss or damage caused by a covered accident to an insured an insured object.
- Additional Benefits
- We will pay for direct physical loss or damage to covered property at an insured location that is contaminated by ammonia as a result of a covered accident to refrigeration or air conditioning vessels and piping included as an insured object

Susceptibility of Products to Ammonia Contamination Damage

- Perishable products – foods and pharmaceuticals. All susceptible products contain water. Water and ammonia mix with each other and react chemically to form a strong caustic that chemically destroys plant and animal tissue.
- Containers destroyed, ink runs destroys labels. Repackage costs vs. replace
- Plastic (and other materials) wrapping not fool proof but helps. Gives time to stop leak and ventilate.
- Other property- building and contents damage. Vapors to dry storage, destroys containers. Repackage costs

Loss Senarios

- NH3 only
- NH3 but really Spoilage
- NH3 and Spoilage
- NH3 and Business Interruption

Loss costs

- Damaged goods – replacement costs vs. sales price
- Building Damage – insulation, walls other property
- Repacking costs vs. toss and replace
- Measuring loss – verify quantity and costs, salvage, CPA

Severity

- Size of leak
- Time of exposure
- Type of property (food). Higher moisture content, larger loss
- packaging