



AMR

Ammonia Recovery

KEY BENEFITS

- Up to 90% ammonia nitrogen recovery from anaerobic digestate
- Produces a variety of nitrogen fertilizers when combined with acid scrubbing
- No chemical addition required for carbon dioxide stripping
- Compact footprint with short hydraulic retention times
- Reduced risk of fouling means less maintenance
- Uses waste heat
- Low energy requirements for cost



AMR at Chicken Manure Anaerobic Digestion Plant



AMR PROCESS

- 1) Waste heat increases the feed stream temperature, and carbon dioxide stripping increases pH without chemical addition. At high temperatures and elevated pH, ammonia present in the feed stream is partitioned into a gaseous phase.
- 2) Gaseous ammonia is stripped and then recovered through scrubbing in a packed bed tower.
- 3) Acid scrubbing can be used to produce an aqueous ammonium sulphate solution, or a dry pearled fertilizer product. Other scrubbing acids can be used, such as citric acid to produce an ammonium citrate solution.



Dry Crystal/Pellet or Liquid Solution
Ammonium Sulfate or Ammonium Citrate

Anaergia's innovative ammonia recovery systems produce a valuable fertilizer product, while significantly reducing ammonia concentrations in liquid waste streams.



APPLICATIONS

- **Fertilizer Production:** Produces nitrogen fertilizer from liquid waste
- **Land Application:** Reduces ammonia concentrations to meet nutrient management requirements
- **Anaerobic Digestion:** Reduces the potential for ammonia toxicity in anaerobic digesters
- **Wastewater Treatment Plants:** Reduces ammonia loading associated with sludge dewatering liquor recycle streams. It eliminates the need for return liquor biological nutrient removal

