ENVIRONMENTAL IMPACT OF INDUSTRIAL REACTIONS

The chemical industry accounts for about 10% of the world’s energy demand and 7% of its greenhouse emissions. Here we take a look at the top 5 chemical products responsible.

1. AMMONIA
   - Synthesis: Haber-Bosch process
   - Major uses: Fertilizers, medicines, and cleaning products

2. ETHYLENE
   - Synthesis: Cracking of long-chain hydrocarbons
   - Major uses: Making polyethylene

3. AROMATICS
   - Synthesis: Catalytic reforming of naphtha
   - Major uses: Solvents and reagents in chemical reactions

4. PROPYLENE
   - Synthesis: Cracking of long-chain hydrocarbons
   - Major uses: Making polypropylene

5. METHANOL
   - Synthesis: Reactions with CO, CO₂, and H₂
   - Major uses: Making other chemicals

**PRODUCTION VOLUMES**

- AMMONIA: 1
- ETHYLENE: 2
- AROMATICS: 3
- PROPYLENE: 4
- METHANOL: 5

**ENERGY CONSUMPTION**

- AMMONIA: 1
- ETHYLENE: 2
- AROMATICS: 3
- PROPYLENE: 4
- METHANOL: 5

**GREENHOUSE GAS EMISSIONS**

- AMMONIA: 1
- ETHYLENE: 2
- AROMATICS: 3
- PROPYLENE: 4
- METHANOL: 5

Source: DECHEMA, 2010. For ethylene and propylene, figures are representative of the steam cracking process.