

Air Pollution from Proposed Ethanol Plants: Sunnyside vs. BioNol

This is what the proposed Sunnyside and Bionol's biorefineries would be allowed to put in the air, according to DEP air permits.

| <u>Pollutant</u> | <u>Permitted Emissions (tons/year)</u> | | <u>Health Problems</u> caused or made worse (<i>not a complete list!</i>) | <u>Frequency of Testing</u> | |
|------------------------------------------|----------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------|
| | <u>Sunnyside</u> | <u>BioNol</u> | | <u>Sunnyside</u> | <u>BioNol</u> |
| Nitrogen Oxides (NOx) | 171.0 | 72.0 | Worsens asthma; decreases lung function; respiratory disease; helps form ozone, which contributes to asthma, heart attacks, low birth weight and premature births | main stack; Once every 2 years for rest of facility | Once within 180 days of startup |
| Carbon Monoxide (CO) | 330.7 | 25.5 | Injuries to heart, brain and other organ and tissues | Continuous | |
| Sulfur Dioxides (SOx) | 435.9 | 1.5 | Lung irritation; worsens asthma; destabilizes heart, low birth rate; sudden infant death | Continuous | Never |
| Particulate Matter (PM) | 130.1 | 63.7 | Increased asthma attacks; increased deaths in elderly; heart disease; stroke; low birth weight; premature births; airway obstruction; sudden infant death syndrome | main stack; every 2 years for rest of facility | Once within 180 days of startup |
| Ammonia | 14.2 | no limit | Breathing problems; suspected neurotoxin and reproductive toxin | Once/year | Never |
| Sulfuric Acid (H2SO4) | 21.8 | no limit | Reduced lung function | Once/year | Never |
| Volatile Organic Compounds (VOCs) | 37.6 | 33.9 | Suspected to cause cancer and to be toxic to reproductive system; 8.41 tons/year allowed from leaks from Sunnyside; 1.37 tons/year for Bionol (6 times less) | main stack; every 2 years for rest of plant | Once within 180 days of startup |
| Hazardous Air Pollutants (HAPs): | 2.2 | 5.2 | See below: | Once/year | Never |

The toxins below are all considered HAPs. Chemical storage tanks on site will release VOCs and volatile HAPs, but these emissions will not be monitored.

| | | | | | |
|-----------------------------------------|----------------|---------------------------|-----------------------------------------------------------------------------------------------|-----------|----------------------------|
| Arsenic | | No specific limits | Cancers; may damage fetus; damage to nerve, stomach, intestines | Once/year | No testing required |
| Beryllium | 37.34 lbs/year | | Lung scarring, breathing difficulties, heart strain, and skin irritation, cancer (lung & | Once/year | |
| Cadmium | | | Cancer (kidney); reproductive problems; kidney & liver damage | Once/year | |
| Chromium VI | | | Cancer (lung & throat); reproductive problems | Once/year | |
| Lead | 123.6 lbs/year | | Reproductive problems; Memory & behaviour problems, Nerve damage, kidney damage | Once/year | |
| Mercury | 2.1 lbs/year | | Nerve toxin; brain damage, mental retardation; birth defects; blood pressure; | Once/year | |
| Nickel | | | Possible cancer (lung); Asthma | Once/year | |
| Other toxic metals | | | Other metals (Antimony, Cobalt, Manganese, Selenium) cause heart, lung problems, brain damage | Once/year | |
| Hydrofluoric Acid (HF) | 3.1 | | Kidney and nervous system damage; damage to bones; learning disabilities | Once/year | |
| Hydrochloric Acid (HCl) | 9.9 | | Lung irritation, worsens asthma | Once/year | |
| Polycyclic Aromatic Hydrocarbons | no limits | | Cancer, birth defects, immune system problems | Never | |
| Dioxins / Furans | no limits | | Cancer; reproductive problems; birth defects; learning disabilities | Never | |
| TOTALS | 1,156 | | 202 | | |

Sunnyside's limits are 5.7 times higher than BioNol's