

Automobile and Indoor pollution

Vehicular pollution:

Vehicular pollution is the introduction of harmful material into the environment by motor vehicles. These materials, known as pollutants, have several bad effects on human health and the ecosystem. Transportation is a major source of air pollution in many countries around the world due to the high number of vehicles that are available on the roads today. An increase in purchasing power means that more people can now afford cars and this is bad for the environment. Vehicular pollution has grown at an alarming rate due to growing urbanisation in India. The air pollution from vehicles in urban areas, particularly in big cities, has become a serious problem. The pollution from vehicles has begun to tell through symptoms like cough, headache, nausea, irritation of eyes, various bronchial and visibility problems.

Sources and types of emission

There are many sources of emissions. These have been grouped into four categories: point, mobile, biogenic, and area. Point sources include things like factories and electric power plants.

point source emission

V-TINU

The U.S. Environmental protection agency defines point source pollution as "any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship or factory."

Mobile Source emission

mobile source air pollution includes any air pollution emitted by motor vehicles, airplanes, locomotives, and other engines and equipment that can be moved from one location to another.

Biogenic emission source

Biogenic emission sources are emissions that come from natural sources, and need to be accounted for in photochemical grid models, as models, as most types are widespread and ubiquitous contributors to background air chemistry.

Area Source emission

Area sources are small-scale industrial, commercial, and residential sources that generate emissions. Statewide area source emissions are calculated and recorded on the country level every three years.

Effect of operating conditions

A previously developed one-dimensional model, based on a forward marching solution technique of the conservation equations has been used to study ejector operation and performance in a large range of refrigeration working conditions. Several important features of ejector operation characteristics were simulated. Global parameter values, their local distributions along the ejector including the temperature, the pressure and the mach number were calculated for design and off design conditions.

- Fluid mixing conditions dictated by the fluid type, the mixing chamber geometry, the inlet and outlet constraints, may lead to off design operation with related stability and performance deterioration.
 - Internal superheat generation, due to inefficient mixing and normal shock waves is very important in off design operation.
 - Generator pressure conditions and the evaporator temperature significantly affect ejector performance
- Alternate fuels and emissions
- Alternative fuel, known as non-conventional and advanced fuels, are any materials or substances that can be used as fuels, other than conventional fuels like; fossil fuels, coal and natural gas), as well as nuclear materials such as uranium
- Page No: 03 / 09

and thorium, as well as artificial radioisotope fuels that are made in nuclear reactors.

Some well-known alternative fuels include bio-diesel, bio-alcohol, refuse-derived fuel; chemically stored electricity, hydrogen, non-fossil methane, non-fossil natural gas, vegetable oil, propane and other biomass sources.

Alternative fuel vehicle emissions

Vehicle emissions are known to negatively affect air quality and human health. For these reasons, emission reduction plays a role in many fleet and consumer decisions to acquire alternative fuel vehicles. However, many drivers don't know that emission reductions vary between alternative fuels. This section details emission pollutants and their impact on human health and the environment, compares alternative fuel emissions with those of their conventional counterparts, and explains the methodology used to compare vehicle emissions.

Emission controls and standards

Emission control system, in automobiles, means employed to limit the discharge of noxious gases from the internal-combustion engine and other components. There are three main sources of these gases: the engine exhaust,

the crankcase, and the fuel tank and carburetor.

Emission standards

Emission standards are the legal requirements governing air pollutants released into the atmosphere. Emission standards set quantitative limits on the permissible amount of specific air pollutants that may be released from specific sources over specific timeframes.

They are generally designed to achieve air quality standards and to protect human life. Different regions and countries have different standards for vehicle emission.

Strategies to Control automobile pollution.

Pollution from vehicles is a major cause of health problems such as asthma. We all benefit from clean air. No matter who you are, there are actions you can take to help reduce the amount of pollution that comes from cars. Everyone, from kids to adults, can help make a difference. Here are some things that you can do.

1. Ride a bike or walk.

If you are only going a short distance, consider riding a bike or walking instead of driving. You can get exercise and enjoy the fresh air while getting where you need to go!

2. Take public transit

If you need to go somewhere that is along a bus or light rail line, consider taking public transit instead of going in a car.

3. Carpool

When going to school or work, try to carpool together with other people who are headed in the same direction. You can save money and reduce the amount of fuel burned at the same time.

4. Avoid idling

When idling, you waste fuel by burning it when you aren't moving. If you will be in the same spot for more than a minute or two, consider turning off your vehicle's engine.

5. Use alternative fuels

Alternative fuels are cleaner than regular gasoline or diesel. Alternative fuel vehicles include electric vehicles and flex-fuel vehicles that can use ethanol blends. Most new electric vehicles now have a range of over 100 miles, which meets most people's daily commuting needs.

Causes of indoor air pollution

Household air pollution causes noncommunicable diseases including stroke, ischaemic heart disease, chronic obstructive pulmonary disease

and Lung Cancer. Close to half of deaths due to pneumonia among children under 5 years of age are caused by particulate matter inhaled from household air pollution.

Around 2.6 billion people still cook using solid fuels and kerosene in open fires and inefficient stoves, most of these people are poor, and live in low - and middle - income countries. These cooking practices are inefficient, and use fuels and technologies that produce high levels of household air pollution with a range of health-damaging pollutants, including small soot particles that penetrate deep into the lungs.

Changes in indoor air quality

Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems. Inadequate ventilation can increase indoor pollutant levels by not bringing in enough outdoor air to dilute emissions from indoor sources and by not carrying indoor air pollutants out of the area. High temperature and humidity levels can also increase concentrations of the some pollutants.

Control and air Cleaning Systems:

An air purifier or air cleaner is a device which removes contaminants from the air in a room to improve indoor air quality. These devices are commonly marketed as being beneficial to allergy sufferers and asthmatics, and at reducing or eliminating second-hand tobacco smoke.

The commercially graded air purifiers are manufactured as either small stand-alone units or larger units that can be affixed to an air handler unit or to an HVAC unit found in the medical, industrial, and commercial industries. Air purifiers may also be used in industry to remove impurities from air before processing. pressure swing adsorbers or other adsorption techniques are typically used for this.

Indoor air quality

Indoor air quality (IAQ) is the air quality within and around buildings and structures. IAQ is known to affect the health, comfort, and well-being of building occupants. poor indoor air quality has been linked to sick building syndrome, reduced productivity, and impaired learning in schools.

IAQ can be affected by gases, particulates,

microbial contaminants, or any mass or energy stressor that can induce adverse health conditions. Source control, filtration, and the use of ventilation to dilute contaminants are the primary methods for improving indoor air quality in most buildings. Residential units can further improve indoor air quality by routine cleaning of carpets and area rugs.

- IAQ is part of indoor environmental quality, which includes IAQ as well as other physical and psychological aspects of life indoors.
- Indoor air pollution is a major health hazard in developing countries.
- A major source of indoor air pollution is the burning of coal, and biomass including wood, charcoal, dung, or crop residue for heating and cooking.