

Steam

Product Stewardship Summary

Background Information

Steam is the vapor form of water when is changed from a liquid to a gas. Steam is often pressurized for cooking, cleaning, and performing mechanical work. Steam engines formed the basis of the Industrial Revolution by improving worker productivity and the speed goods could be produced. Various steam engines were built in the first half of the 19th century. They were adopted not only in factories to produce goods faster and cheaper, but they also found use in steamboats and railroads.

Steam is used today primarily to generate electricity. Steam power generators account for 80% of the electricity produced today.

Chemical Formula: H₂O

Other Names: None

Applications, Benefits, & Use

Power Generation: Steam generators are used to produce electricity at both nuclear and fossil fuel power plants.

Heating: Steam is widely used in industry for heating a variety materials. Heating applications are found in food processing facilities, oil refineries and chemical plants.

Motive Fluid: Steam can can be used as a motive force to move liquids and gases by creating a vacuum with a venturi.

Cleaning: Power generating equipment that may become sooty with combustion by products are cleaned with steam in some cases.

Food: Sanitizing food equipment and keeping it free of residues. Food work surfaces are often degreased and cleaned with steam.

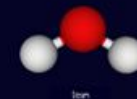
Health Care: Sterilization and disinfection with steam can performed in healthcare facilities with an autoclave.

Moisturization: Moisturizing paper makes it more resistant to tearing and cracking. Animal feed is sometimes moisturized to soften and help shape feed pellets.

Other: Steam turbines can also be used to power large centrifugal water pumps.

Regulatory Information

There are regulations that govern the manufacture and use of materials. These regulations vary by city, state, country or geographic region. Additional regulatory information may be found on the Safety Data Sheet as well as local and federal agency websites.



Human Health and Environmental Effects

Human Health:

- Steam can cause serious burns. High pressure steam (above 15 psig) can be especially dangerous, since it is even hotter than low pressure steam.
- If you see steam escaping from a pipe or piece of equipment, stay away from it and notify the appropriate personnel.
- Uninsulated steam pipes or equipment can be very hot. They are to be handled only with the appropriate PPE.
- Before opening valves in steam lines, check for adequate placement and proper operation of steam traps.

Environment:

- Steam is produced from water and does not pose a hazard to the environment.

Exposure Potential and Risk Mitigation Measures

Industrial Use:

- Steam is transported as a pressurized gas, most often in pipelines.

Consumer Use:

- Steam is transported by pipeline, so exposure to direct consumers is not anticipated.

Additional Sources of Information

- Air Liquide Safety Data Sheet
- American Chemistry Council

Contact Information

For matters related to health, safety, security, environment or Responsible Care® commitments, contact us by phone at 713-438-6721 or by [email](#).