TERALTA

DATASHEET

Hydrogen Emissions and Global Warming

Byproduct hydrogen from Chemtrade facility in Prince George, before Teralta.

Some industrial processes produce byproduct hydrogen that is typically vented into the atmosphere.

While this is a commonplace dispersal method for waste hydrogen, the science reflects that the practice may have longer-term environmental impacts.

Warming effects of hydrogen emissions

Over time, the release of waste hydrogen alters the chemistry of the atmosphere, increasing greenhouse gases. Here's what happens:

1. Emitted hydrogen (H2) reacts with hydroxyl radicals (HO), a neutral form of the hydroxide ion that occurs naturally within the atmosphere.

2. HO is the key oxidant in the global atmosphere as it controls the concentrations of climate relevant gases such as methane (CH4), as well as toxic gases such as carbon monoxide.

3. The reaction between H2 and HO reduces the concentration of hydroxyl radicals, prolonging the lifetime of atmospheric methane which increases the production of ozone and other greenhouse gases for a warmer environment.

Byproduct hydrogen in the future

Currently, hydrogen is considered an indirect greenhouse gas since it doesn't cause a warming effect on its own. However, climate scientists have begun to publish findings that quantify the global warming potential of hydrogen.

In the future, as emissions thresholds decrease in the face of climate change, the venting of byproduct hydrogen may be reclassified as a greenhouse gas, impacting the industries that rely on this dispersal method.

These changes will require companies to adjust ESG and other environmental guidelines established to support accountability and public trust—a significant undertaking that could alter foundational aspects of the business.

Act today

Many companies, like our partner Chemtrade, are taking action now to proactively implement best practices and safeguard the environment.

Read the Prince George case study to learn how Chemtrade is diverting about 500,000 gigajoules of byproduct hydrogen annually, to be cleaned and sold as an energy supply to a neighboring pulp and paper mill.

Teralta is committed to simplifying the complicated path to clean, utility-scale hydrogen for industrial and commercial use.

If you have any questions or would like more information about Teralta and the work we do, **contact us** or **visit our website**.

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