

## Basis of Reporting Document

Stepan shares information across a broad set of environmental, social and business-related metrics on an annual basis. In an effort to promote understanding of our sustainability-focused commitments and to communicate clearly on our goals and performance, this information is made available to our various stakeholders in our [Sustainability Report](#) and in our [ESG Analyst Download](#). For a subset of the data that is shared, Stepan undergoes external limited assurance, and the metrics undergoing assurance during each year will be identified in the Sustainability Report for that year. This document outlines reporting criteria for select metrics. As reporting responsibilities increase Stepan will expand this document based on the external assurance of additional material topics that are important for our stakeholders.

In this Basis of Reporting Document, Stepan prioritizes metrics related to greenhouse gas emissions, energy use, water use, and safety performance. For each category of metrics, we provide the scope of reporting coverage, definitions, and data management processes. Stepan reports across our global footprint, from January 1 to December 31 for the prior year of activity. Reporting on our greenhouse gas emissions and safety performance includes all operational activities, including manufacturing facilities, offices, and laboratory settings. The scope of reporting for our water metrics includes manufacturing activities only.

### Restatements

Previously published emissions data will be restated according to recommendations outlined in the GHG Protocol, including for acquisitions, divestitures or other changes to organizational boundaries, identification of new emissions sources, or improvements to data quality or accounting that represent at least 5% of total emissions. Restatements for water, waste or safety data will not occur unless Stepan identifies a change that represents 5% or greater of the previously reported data.

# Energy and Emissions Metrics

## Overview

Stepan Company monitors energy use and greenhouse gas (GHG) emissions data in support of sustainability goals and reporting and has collected this data for numerous years across our sites. We track progress against a 2016 base year, with 2030 emission reduction goals. This information is used to communicate to external stakeholders on our environmental footprint and to identify opportunities for improvement in our global operations. We work to align with broadly recognized frameworks and report annually to the CDP (formerly the Carbon Disclosure Project) on our energy usage and emissions. CDP works to drive further alignment with widely adopted frameworks including the GHG Protocol Corporate Accounting and Reporting Standard. Stepan strives to align with the GHG Protocol for emissions calculations, and we work to drive continuous improvement in our GHG data collection and management process. This Basis of Reporting document provides details on the scope, boundaries, and other details regarding sources of information utilized to calculate Scope 1 and 2 emissions and energy usage.

## Energy and Emissions Metrics Covered Under this Report

Greenhouse Gas Emissions and Energy			
	Metric	Definition	Calculation Methodology
	Total Scope 1 emissions	Kilotons CO <sub>2</sub> e	Greenhouse Gas Protocol with details on data collection outlined below
	Total Scope 2 emissions (location and market based)	Kilotons CO <sub>2</sub> e	Greenhouse Gas Protocol with details on data collection outlined below
	Total Energy Consumed	1,000 Terajoules	Greenhouse Gas Protocol with details on data collection outlined below

## Scope of Reporting

### I. GHG Emissions

Stepan’s Absolute Greenhouse Gas (GHG) emission sources included within our data assurance process include those associated with our direct operations (Scope 1) and purchased energy and steam (Scope 2). We report both location-based and market-based emissions. Stepan does not currently include Scope 3 emissions in our data assurance process.

*Scope 1 emissions are those released directly from our operations through activities associated with business (reported as kilotons carbon dioxide equivalents- CO<sub>2</sub>-e):*

- a. Generation of electricity, heat, or steam through use of natural gas, propane, diesel, biofuels, or other fuels
- b. Physical or chemical processing
- c. Fugitive emissions
- d. Fuel consumption from on-site fleet and car-related business travel

*Scope 2 emissions are those from off-site generation of electricity, heat or steam that is used by Stepan Company or sold (kilotons CO<sub>2</sub>-e):*

- a. Purchased electricity
- b. Purchased steam
- c. Purchased heat (not currently relevant for Stepan sites)
- d. Sold steam

## II. Energy Usage

*Energy usage (Terajoules) is calculated for all included emissions categories using either primary data from meter readings and utilities providers or calculations based on modeling or category spend data, with standard and conversion factors and annually reviewed emission factors.*

## III. Boundaries for Annual Reporting

For the purposes of tracking Company energy use and emissions, all Stepan manufacturing facilities, laboratories, and offices for which we have operational control are included. Primary data is obtained from utilities providers and meter readings across all manufacturing sites, as well as Stepan's headquarters, Global Technology Center, and Millsdale (Elwood, IL) Distribution Center. Consumption data is used to estimate GHG emissions based on region of operation, using relevant emissions factors for location based and market-based emissions. The emission factors are provided and updated annually in alignment with U.S. EPA standards, International Energy Agency (IEA), UK Government GHG Conversion Factors (e.g., DEFRA), and incorporating the most current Intergovernmental Panel on Climate Change (IPCC) information for global warming potentials (GWPs).

Additional Stepan emissions sources are estimated using other methods. These include:

- a. Laboratories and offices outside of Stepan's headquarters that are not associated with a manufacturing site: estimate based on square footage and employee number
- b. Lower volume fuels or gases (e.g., acetylene, propane, CO<sub>2</sub> gas) at Stepan's manufacturing sites: estimate based on spend data
- c. Company fleet emissions: estimate based on spend data
- d. Process emissions associated with process gas combustion: based on state emissions reports, stack-test data, or modeling
- e. Ozone depleting substances: based on service records and refrigerant replacement activity
- f. Biogenic sources of emissions calculated based on mass of biobased material combusted and standard emissions factors.

We are not aware of any excluded emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O or HFC, however in some instances they may be overlooked. When they are identified, adjustments are made to integrate those sources into standard reporting.

## Data Management

Stepan calculates GHG emissions following the GHG Protocol. Our emissions calculations include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs. Other gases represent de-minimis levels (less than 5% of overall emissions) and are not separately accounted for. We utilize a combination of primary data, service records, inputs based on engineering models, stack-test data, and spend data in conjunction with relevant conversion factors and emissions factors. Fugitive emissions are calculated using service records and refrigerant replacement records. Stepan fleet-related emissions (from company-owned and leased vehicles) are estimated based on spend records for this category of activity and exclude other business travel and third-party material transport, which are included in Scope 3.

Stepan partners with an outside party for utilities data management. This partner also supports annual updates to our regional Carbon Maps, which incorporate relevant emissions factors, including updates based on IPCC reports and U.S. EPA Rules for Mandatory Reporting of GHG emissions for the industrial sector. Data is monitored, reviewed, summarized and reported in a centralized manner, with reporting from each of our facilities into Stepan's data management platforms.

# Water Metrics

## Overview

Stepan operates our manufacturing facilities in widely varying geographies, with a range of water-related considerations. We monitor water usage, water quality and other parameters to ensure responsible management of local water resources, regulatory compliance, and ability to conduct our business activities.

## Water Metrics Covered Under This Report

Water Use Activity		
Metric	Definition	Calculation Methodology
Total water consumed in Stepan products	1000 megaliters Water consumed in the finished product	Determined from product recipes across Stepan’s global portfolio. Water requirements for each manufactured product is tracked in SAP and compiled for accounting purposes.
Total freshwater withdrawn at manufacturing facilities	1000 megaliters Water withdrawn from groundwater, surface water, third-party sources	Site-level measurement, flowmeters, invoices
Total water discharged at manufacturing facilities	1000 megaliters Water discharged or sent to a third party for wastewater treatment	Site-level measurement; flowmeters, municipal metering and invoices
Percentage of operations in regions of high risk	% of sites in high or extremely high overall water risk	Based on World Resources Institute (WRI) Aqueduct Assessment
Freshwater use per unit production*	Megaliters per metric ton production  Freshwater withdrawn divided by production volume.  *Production volume was not separately assured as part of this review and is taken as a given. Production volume is defined as throughput volumes, including volumes moved through each process activity required to produce the finished good.	Calculated based on the freshwater withdrawn divided by measured production activity across our global manufacturing facilities.

**Scope**

Water use activities are tracked and reported across our global manufacturing facilities. Water use is measured directly with site meters, through invoices from third parties and/or modelled.

Stepan evaluates water-related risks using a combination of site-based reviews and surveys, engagement with area organizations, and with use of the World Resources Institute (WRI) Aqueduct tool. While we utilize information from these various sources for planning purposes, we report out on the results from the WRI Aqueduct assessment. This allows for efficient reassessments on a regular basis, using a standardized and recognized approach. Stepan reports the percentage of sites in “high” or “extremely” high overall risk, which takes into account physical, reputational, regulatory, and quality considerations.

Production volume is not separately assured. Production volume is defined as throughput volumes, which includes volumes moved through each process activity required to produce the finished good.

**Data Management**

Water use activity is measured at each of our manufacturing facilities and data is collected in Stepan’s Management System for environmental, health, safety, and sustainability-related performance data. Data is reviewed for quality and completeness at the corporate level before being finalized and submitted for reporting to meet local, national or regional requirements and for our annual Sustainability report.

# Health and Safety

## Overview

Safety is a top priority for Stepan Company and we work to monitor health and safety performance across our global operations. The Company reports on this topic to numerous external organizations to fulfill regulatory requirements, to drive alignment across our organization on key priorities, and to communicate progress.

## Health and Safety Metrics Covered Under This Report

Health and Safety Performance			
	Metric	Definition	Calculation Methodology
	Lost time incident rate (LTIR)*	Rate of incidents leading to an employee being unable to work for a minimum of one-day over the course of one year. Calculated rate normalized by hours worked.	Occupational Safety and Health Administration (OSHA) and international standards applied to each of our regions of operation.
	Total recordable incident rate (TRIR)*	Number of work-related injuries or illnesses per defined hour multiplier during a one-year period.	Occupational Safety and Health Administration (OSHA) and international standards applied to each of our regions of operation.
	Days away, restrictions, and transfers (DART) rate*	Rate of recordable incidents requiring time off of work, assignment to restricted duties, or reassignment to different positions during a one-year period. Uses the standard industry normalization factor of 200,000 hours to represent the equivalent of 100 full-time workers, 40 hours per week, 50 weeks per year.	Occupational Safety and Health Administration (OSHA) and international standards applied to each of our regions of operation.
	Process Safety Incident Count (PSIC)*	Stepan reports PSIC based on Tier 1 Process Safety events. The total number of Tier 1 Process Safety Events (PSEs) that occur within the specified reporting period.	ANSI/API Recommended Practice 754 3rd Edition: Process Safety Performance Indicators for the Refining and Petrochemical Industries
	Process Safety Total Incident Rate (PSTIR)*	Stepan reports PSIC based on Tier 1 Process Safety events. The frequency of Tier 1 Process Safety Events relative to exposure hours, using the standard industry normalization factor of 200,000 hours as described above.	ANSI/API Recommended Practice 754 3rd Edition: Process Safety Performance Indicators for the Refining and Petrochemical Industries
	Process Safety Incident Severity Rate (PSISR)*	The normalized, severity-weighted rate reflecting the consequences of Tier 1 Process Safety Events, assigning greater weight to events with more severe outcomes. Based on the same 200,000 normalization factor as described above.	ANSI/API Recommended Practice 754 3rd Edition: Process Safety Performance Indicators for the Refining and Petrochemical Industries

\*Employee is defined as Stepan employees, temporary workers, and supervised contractors

**Scope**

Health and safety data for the metrics included in this report are collected, tracked and reported for permanent and temporary workers as well as supervised contractors. Stepan utilizes standard definitions for health and safety metrics, provided by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) and by the international standards applicable to our other regions of operation.

**Data Management**

Data is collected and reviewed by Stepan's regional and local Human Resources team according to regional and local standards and laws. Information is reported into Stepan's Management System for environmental, health, safety and sustainability data. Data quality and completeness is reviewed by corporate leaders and it is compiled to meet various reporting responsibilities, ranging from local to national to Company-wide reporting.