

NOTES TO SUPPORT THE DATA TABLE

General Notes

The 2009 data presented in this report are for the following production and fill/finish facilities: South San Francisco, Vacaville and Oceanside, California, and Hillsboro, Oregon. The data also includes the research, development, commercial and administrative offices at our South San Francisco headquarters and our Louisville, Kentucky, distribution facility.

This report does not include performance data for joint ventures or outsourced operations, nor does it include data for sales offices. No data are shown for buildings which Genentech owns and leases out to other parties.

Data are reported for new facilities and buildings from the point at which Genentech becomes responsible for payment of utilities and other services, such as waste disposal. Data for the Porrino, Spain, facility which Genentech acquired in 2000 and sold to Lonza at the end of 2006 have been removed from the consolidated data for 2005 and 2006.

Data for the Tuas, Singapore, facility which became operational in 2008 and was moved to a different part of the Roche organizational structure in mid-2009 have been removed from the consolidated data for 2008.

All figures in the data table, with the exception of figures less than 20, are rounded to the nearest whole number. Due to this rounding, the individual elements of the data table may not always add up to the totals.

All electricity, natural gas and water data are based on meter readings provided by our utility vendors.

Greenhouse Gas Emissions (General)

Greenhouse gas emissions data for 2005–2009 is reported and organized in line with the U.S. EPA Climate Leaders program.

The following emission sources have been added for 2009 and are included in revised data for 2005–2008 unless otherwise stated below:

- Air conditioning systems and fire suppressants (back to 2008)
- Onsite vehicles
- Process gases
- Operational lease buildings
- Nitrous oxide and methane from combustion sources

The greenhouse gases included in the data reported back to 2005 are carbon dioxide, methane, nitrous oxide and hydrofluorocarbons. The 2005-2009 GHG emissions data are reported as CO₂ equivalents (CO₂e).

U.S. EPA Climate Leaders reporting guidance allows for small emission sources (e.g., accounting for <1% of the total emissions) to be held flat after the baseline year. 2008 is the baseline year for the current Climate Leaders goal, and the following emission sources have been held flat for 2009: process gases, onsite vehicles and HFC refrigerants in vehicles.

Energy Use and Related Greenhouse Gas Emissions

Diesel fuel consumption at our South San Francisco facility increased 140% in 2009 compared with 2008 because a building transformer failed and an emergency generator ran continuously for several weeks, supporting normal operations until the transformer could be repaired.

Electricity-Related CO₂ and CO₂e Emission Factors

Site	Year	Emission Factor	Source
South San Francisco, Vacaville and Oceanside, California	2005-2006	0.805 lb CO ₂ /kWh 0.0305 lb CH ₄ /MWh 0.0073 lb N ₂ O/MWh	U.S. EPA eGRID2002 Regional emission factors for WSCC California (CALI)
	2007	0.879 lb CO ₂ /kWh 0.0366 lb CH ₄ /MWh 0.0085 lb N ₂ O/MWh	U.S. EPA eGRID2006 v2.1 Regional emission factors for WECC California (CAMX)
	2008-2009	0.72412 lb CO ₂ /kWh 0.0302 lb CH ₄ /MWh 0.0081 lb N ₂ O/MWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for WECC California (CAMX)
Louisville, Kentucky	2006	1.373 lb CO ₂ /kWh 0.0223 lb CH ₄ /MWh 0.0215 lb N ₂ O/MWh	U.S. EPA eGRID2002 Regional emission factors for SERC Tennessee Valley (SRTV)
	2007	1.495 lb CO ₂ /kWh 0.0233 lb CH ₄ /MWh 0.0237 lb N ₂ O/MWh	U.S. EPA eGRID2006 v2.1 Regional emission factors for SERC Tennessee Valley (SRTV)
	2008 - 2009	1.509 lb CO ₂ /kWh 0.0201 lb CH ₄ /MWh 0.0256 lb N ₂ O/MWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for SERC Tennessee Valley (SRTV)
Hillsboro, Oregon	2008-2009	0.902 lb CO ₂ /kWh 0.0191 lb CH ₄ /MWh 0.0149 lb N ₂ O/MWh	U.S. EPA eGRID2007 v1.1 Regional emission factor for WECC Northwest (NWPP)

Natural Gas-Related CO ₂ and CO ₂ e Emission Factors		
Year	Emission Factor	Source
2005-2006	5.279 kg CO ₂ /therm 0.5 g CH ₄ /therm 0.01 g N ₂ O/therm	California Climate Action Registry GRP 2.0
2007-2009	5.306 kg CO ₂ /therm 0.5 g CH ₄ /therm 0.01 g N ₂ O/therm	U.S. EPA Climate Leaders Stationary Combustion Protocol (May 2008)

Diesel-Related CO ₂ and CO ₂ e Emission Factors		
Year	Emission Factor	Source
2005-2006	10.05 kg CO ₂ /gallon 0.0014 kg CH ₄ /gallon 0.0001 kg N ₂ O/gallon	California Climate Action Registry GRP 3.1 Emission Factors for distillate fuel oil (#1, 2 and 4)
2007-2009	10.15 kg CO ₂ /gallon 0.0014 kg CH ₄ /gallon 0.0001 kg N ₂ O/gallon	

Global Warming Potentials (GWP) used to calculate CO ₂ e		
Gas Type	GWP	Source
CO ₂	1	U.S. EPA Climate Leaders Design Principles Protocol (May 2005) Table 6.3
CH ₄	21	
N ₂ O	310	

Greenhouse Gas Emissions from Mobile Combustion

The Mobile Combustion category comprises emissions from the Genentech sales fleet and onsite vehicles. The sales fleet represents over 95% of the total mobile combustion emissions. Emissions from non-sales road business travel by employees (a scope 3 emission source) have not been included in the reported data.

The Genentech sales fleet mileage has been calculated from employee expense claims, and gallons have been calculated using an average fuel economy of 20.4 miles/gallon. 2005–2008 data have been updated to use this factor in place of the 25.4 miles/gallons previously used, as we consider the revised factor to be more reflective of the fleet SUV: passenger car split.

Road Travel Gasoline Emission Factors		
Gas Type	Emission Factor	Source
CO ₂	8.81kg /gallon	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 5 (May 2008)
CH ₄	0.0154g /mile	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 2 (May 2008). Weighted Emission Factor assuming fleet comprises 70% SUV:30% passenger cars.
N ₂ O	0.0094g /mile	

Road Travel Diesel Emission Factors		
Gas Type	Emission Factor	Source
CO ₂	10.15kg /gallon	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 5 (May 2008)
CH ₄	0.0015g /mile	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 2 (May 2008). Emission Factor for advanced light trucks.
N ₂ O	0.001g /mile	

GWPs for methane and nitrous oxide are as shown in the Energy Use section above.

Greenhouse Gas Emissions from HFC Gases

This category includes emissions from stationary air conditioning, cooling and fire suppression equipment, as well as vehicle air conditioning systems (Genentech sales fleet and South San Francisco onsite vehicles).

Changes over the year in the onsite inventory of HFC gases, the addition of HFCs brought on site by contractors and HFC disposal were used as the basis for estimating releases to atmosphere from stationary equipment.

Emissions from vehicles were calculated using the EPA Climate Leaders protocol 'rule of thumb' which assumes:

- 100% of vehicles use R-134a
- Refrigerant charge per passenger car vehicle is 0.8 kg
- Refrigerant charge per light truck is 1.2 kg
- Operating loss factor is 20%

The table below shows the HFC gases included in the emissions calculations and their global warming potentials (GWP).

Global Warming Potentials (GWP) used to calculate CO ₂ e		
Gas Type	GWP	Source
HFC-134a	1,300	U.S. EPA Climate Leaders Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment
R-404A	3,260	
R-410A	1,725	
R-507	3,300	
ISCEON M089	3,038	

Greenhouse Gas Emissions from Process Gases

Annual CO₂ emissions from dry ice and liquid and gas CO₂ are estimated using purchase data from the vendor. In the absence of standard calculation methods, Genentech assumes that 100% of the CO₂ used for these purposes is vented to the atmosphere.

Annual GHG emissions from Genentech's use of CH₄ and N₂O in manufacturing and research and development are also calculated using vendor purchase data and U.S. EPA Climate Leaders emission factors; emissions are reported as CO₂ equivalents.

Greenhouse Gas Emissions from Business Travel (Air)

The air travel data present CO₂e emissions arising from flights made by Genentech employees, which were booked through Genentech's official travel agencies. Travel booked through alternative means is not included. 2009 is the first year that meeting travel, booked through specialist travel agencies, has been included.

For air travel emissions calculations, we use the World Resource Institute's GHG Protocol for Mobile Combustion, version 2.0. Air travel data for 2005–2008 have been recalculated using updated emission factors¹ published by the UK DEFRA² in 2008. The emission factors are shown below.

Air Travel Emission Factors			
Flight/Gas Type	Emission Factor	Source	
Short Haul (<300 miles)			
CO ₂	0.3kg /mile	2009 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6	
CH ₄	0.108g /mile		
N ₂ O	0.0095g /mile		
Medium Haul (300 - 2,300miles)			
CO ₂	0.172kg /mile		
CH ₄	0.0008g /mile		
N ₂ O	0.0055g /mile		
Long Haul (>2,300miles)			
CO ₂	0.197kg /mile		
CH ₄	0.0008g /mile		
N ₂ O	0.0062g /mile		

Starting in 2008, the raw data we receive on air travel miles are broken down into short, medium, and long haul flights. As the raw data we have for 2005–2007 are not broken down in the same way, we assumed that all travel was medium haul for the purpose of previous Sustainability Reports. This year we have used the 2008 air travel data to estimate the short, medium and long haul mileage breakdown for 2005–2007 and have revised the greenhouse gas emissions estimates accordingly. GWPs for methane and nitrous oxide are as shown in the Energy Use section above.

Employee Commute Emissions

Employee commuting emissions estimates were based on the results of cordon counts to establish modal split at the point of entry to Genentech's South San Francisco facility. These data are supported by additional information related to the Genentech shuttle fleet and data available from third parties, such as emission factors for the local public transit provider, Bay Area Rapid Transit. The study makes several assumptions such as the average distance traveled by Genentech employees traveling alone and the composition of the Genentech employees' vehicle fleet. The WRI/WBSCD Employee Commute tool is used as the source for CO₂ conversion factors.

¹ In the absence of flight class information (e.g., business, economy), average EFs are used.

² Department of Environment, Food and Regional Affairs

The model used to estimate employee commute emissions is updated and refined as better data and more detailed information becomes available. The 2009 estimates, and recalculations of the 2006–2008 numbers, incorporate the following model refinements:

- Recalculation of commute distances for all transport modes using registration data from the gRide program. The recalculation resulted in a decline in average commute distance between 2006 and 2009.
- Recalculation of GenenBus and Caltrain emissions, to incorporate actual fuel use, mileage and ridership (GenenBus) and emissions associated with empty return trips (GenenBus) and passenger travel to and from the bus stop (GenenBus) or station (Caltrain). These recalculations led to an increase in GenenBus and Caltrain emissions.
- Replacement of the drive alone emissions factor used in the original model with a more relevant emissions factor taken from the U.S. Department of Energy Transportation Energy Data Book. This led to a slight increase in drive alone emissions.

Volatile Organic Compound (VOC) Emissions to Air

VOC emissions are reported for solvent wipe cleaning activities. Other sources of VOCs (such as boilers and generators) are excluded.

The products included in the data are alcohol wipes, solution (70% alcohol/30% water) and reagent alcohol (100% alcohol). The solvent types represented are ethanol, methanol and isopropanol.

The methods for calculating VOC emissions vary by site to align with the local air quality management district's regulatory procedures. For South San Francisco and Vacaville, the data are based on an assumption that 100% of the solvent used is emitted to air. In practice the actual VOC emissions are likely to be lower because some solvent will be retained on used wipes. For Oceanside, the VOC emissions calculations take into account the amount of solvent retained on used wipes and removed from the facility as drummed waste.

Ozone Depleting Substances (ODS) to Air

This category includes emissions of chlorofluorocarbon (CFCs) and hydrochlorofluorocarbon (HCFCs) gases from stationary air conditioning, cooling and fire suppression equipment.

Changes over the year in the onsite inventory of gases, the addition of gases brought on site by contractors and CFC/HCFC disposal were used as the basis for estimating CFC and HCFC releases to atmosphere from the equipment.

In accordance with the Global Reporting Initiative reporting guidelines, we have reported CFC and HCFC releases as R11 equivalents, using the ozone depletion potentials below.

Global Warming Potentials (GWP) used to calculate CO ₂ e		
Gas Type	ODP	Source
R-12	1.0	Montreal Protocol Handbook
R-22	0.055	
R-502	0.221	http://www.refrigerant-supply.com/references/r-502.htm

Hazardous Waste (including U.S. Regulated Waste)

Hazardous waste includes waste regulated as hazardous under federal and state law, including universal and medical waste.

Regulated waste reported under the Other Recovery category represents organic waste sent offsite for use as an incineration fuel.

The vast majority of wastes reported under the Other Treatment category are subject to specialized offsite waste water treatment.

We show reused/recycled electronic waste from 2007 as an individual line item in the Hazardous Waste category. Included are electronic items such as computers, monitors, keyboards, lab equipment and cell phones. For years prior to 2007, reliable data are not available for the larger electronic waste items, and the smaller electronic items were included in the hazardous waste recycling category.

Non-Hazardous Waste

The data are for all waste types that are not captured in the hazardous waste category.

The data are based on actual weights, where these are available, and estimates elsewhere. Starting in 2008 most categories of waste were estimated using a standard weight per container combined with the number of container pick-ups during the reporting year. The standard weights are based on the National Recycling Coalition Measurement Standards and Reporting Guidelines; EPA; FEEOC and CIWMB 2006. We have applied these same standard weight conversions to our 2007 data to enable better comparison.

Due to a lack of reliable information from some new facilities during the transition from construction to operation, the non-hazardous waste data are not included for 2005 for Oceanside or for 2008 for Hillsboro.

Recovery rate (%) is the total weight of recycled and composted waste divided by the total weight of recovered and non-recovered waste x 100.

Injury and Illness Rate (IIR)

IIR is measured as the number of injuries/illness cases per 100 employees that resulted in medical treatment beyond first aid. The equation for calculating the IIR is:

$$\frac{\text{Number of injuries/illnesses that resulted in medical attention beyond first aid}}{\text{Total hours worked by all employees in the past year}} \times 200,000$$

Days Away/Restricted Time Rate (DART)

The DART rate is measured as the number of injuries and illness cases per 100 employees that resulted in missing one or more days of work or working with restrictions for one or more days. The equation for calculating the DART is:

$$\frac{\text{Number of injuries/illnesses that resulted in an employee losing one or more days of work, or working one or more days with restrictions}}{\text{Total hours worked by all employees in the past year}} \times 200,000$$