

**FORMULAS for CALCULATING RATES**  
*OSHA Recordable Incident Rate*  
*Lost Time Case Rate*  
*Lost Work Day Rate (LWD)*  
*DART Rate (Days Away/Restricted or Job Transfer Rate)*  
*Severity Rate*

## USEFUL DEFINITIONS

**OSHA RECORDABLE INCIDENT RATE** - a mathematical calculation that describes the number of employees per 100 full-time employees that have been involved in a recordable injury or illness.

**TOTAL INCIDENT RATE** – a mathematical calculation that describes the number of recordable incident per 100 full-time employees in any given time frame.

**LOST TIME CASE RATE** – a mathematical calculation that describes the number of lost time cases per 100 full-time employees in any given time frame.

**LOST WORKDAY RATE** – a mathematical calculation that describes the number of lost workdays per 100 full-time employees in any given time frame.

**SEVERITY RATE** – a mathematical calculation that describes the number of lost days experienced as compared to the number of incidents experienced.

**DART RATE** - a mathematical calculation that describes the number of recordable incidents per 100 full time employees that resulted in lost or restricted days or job transfer due to work related injuries or illnesses.

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## INCIDENT RATE(S) USES

Incident rates, of various types, are used throughout industry. Rates are indications only of past performance (lagging indicators) and are not indications of what will happen in the future performance of the company (leading indicators). Incident rates have been standardized, so that OSHA and other regulatory agencies can compare statistically significant data, and determine where industries may need additional program assistance. OSHA uses the recordable incident rates to determine where different classifications of companies (manufacturing, food processing, textiles, machine shops, etc.) compare to each other with regard to past safety performance. Although OSHA could potentially use this data for enforcement action, unless incident rates are consistently high for a small company over a number of years, they will not normally target particular industries or companies for enforcement action.

OSHA has established specific mathematic calculations that enable any company to report their recordable incident rates, lost time rates, and severity rates, so that they are

comparable across any industry or group. The standard base rate for the calculations is based on a rate of 200,000 labor hours. This number (200,000) equates to 100 employees, who work 40 hours per week, and who work 50 weeks per year. Using this standardized base rate, any company can calculate their rate(s) and get a percentage per 100 employees.

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## ***CALCULATIONS***

### ***OSHA Recordable Incident Rate***

The OSHA Recordable Incident Rate (or Incident Rate) is calculated by multiplying the number of recordable cases by 200,000, and then dividing that number by the number of labor hours at the company.

$$\text{IR} = \frac{\text{Number of OSHA Recordable Cases} \times 200,000}{\text{Number of Employee labor hours worked}}$$

Rate Calculation Example - a company has 17 full-time employees and 3 part-time employees that each work 20 hours per week. This equates to 28,400 labor hours each year. If the company experienced 2 recordable injuries, then the formula works like this:

$$\text{IR} = \frac{2 \times 200,000}{28,400} \quad \text{IR} = \frac{400,000}{28,400} \quad \text{IR} = 14.08$$

What is now known is that for every 100 employees, 14.08 employees have been involved in a recordable injury or illness. Please note that smaller companies that experience recordable incidents will most likely have high incident rates, or the incident rates will fluctuate significantly from year to year. This is because of the small number of employees (and hence the lower number of labor hours worked) at the company. Calculations are more meaningful at larger companies that have a higher labor hour count.

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### ***Lost Time Case Rate (LTC)***

The Lost Time Case Rate is a similar calculation, only it uses the number of cases that contained lost work days. The calculation is made by multiplying the number of incidents that were lost time cases by 200,000 and then dividing that by the employee labor hours at the company.

$$\text{LTC Rate} = \frac{\text{Number of Lost Time Cases} \times 200,000}{\text{Number of Employee Labor Hours Worked}}$$

Rate Calculation Example--assume that one of two recordable cases had lost work days associated with the incident. The calculations would look like this:

$$\text{LTC Rate} = \frac{1 \times 200,000}{28,400} \quad \text{LTC Rate} = \frac{200,000}{28,400} \quad \text{LTC Rate} = 7.04$$

What is now known is that for every 100 employees, 7.04 employees have suffered lost time because of a work related injury or illness.

### ***DART Rate (Days Away/Restricted or Job Transfer Rate)***

The DART rate is relatively new to industry. This rate is calculated by adding up the number of incidents that had one or more Lost Days, one or more Restricted Days or that resulted in an employee transferring to a different job within the company, and multiplying that number by 200,000, then dividing that number by the number of employee labor hours at the company.

$$\text{DART Rate} = \frac{\text{Total Number of DART incidents} \times 200,000}{\text{Number of Employee Labor Hours Worked}}$$

Rate Calculation Example - assume that one of two recordable incidents resulted in limited or restricted work activity that necessitated a job transfer to a different position in the company. The first was a broken leg that had only lost time associated with it (no restriction or transfer). The calculations would look like this:

$$\text{DART Rate} = \frac{2 \times 200,000}{28,400} \quad \text{DART Rate} = \frac{400,000}{28,400} \quad \text{DART Rate} = 14.08$$

What is now known is that for every 100 employees, 14.08 incidents resulted in lost or restricted days or job transfer due to work related injuries or illnesses.

### **Severity Rate (SR)**

The severity rate is a calculation that gives a company an average of the number of lost days per recordable incident. Please note, that very few companies use the severity rate as a calculation, as it only provides an average. The calculation is made by dividing the total number of lost workdays by the total number of recordable incidents.

$$SR = \frac{\text{Total number lost workdays}}{\text{Total number of recordable incidents}}$$

Rate Calculation Example – assume there were 5 lost workdays and two recordable incidents. The severity rate calculation would look like this:

$$SR = \frac{5}{2} \quad SR = 2.5$$

What is now known is that for every recordable incident at the company, an average of 2.5 days will be lost due to those work related injuries and illnesses.