

Analysis of Tesla Injury Rates: 2014 to 2017

May 24, 2017



Worksafe is a California-based organization whose mission is to prevent injury, illness, and death by bringing justice to the workplace. We envision a world where workers and their communities are safe and healthy, and we are dedicated to eliminating all types of workplace hazards. We advocate for protective worker health and safety laws and effective remedies for injured workers. We watchdog government agencies to ensure they enforce these laws. We engage in campaigns in coalition with unions, workers, community, environmental and legal organizations, and scientists to eliminate hazards and toxic chemicals from the workplace.

Executive Summary

Over the past several months, workers at Tesla have become increasingly aware of the potential safety hazards at the company's flagship vehicle plant in Fremont, California. In April 2017, workers first requested copies of the OSHA Form 300, the log of work-related injuries and illnesses that companies are required by law to make available to their employees. Worksafe, a California non-profit organization that specializes in workplace health and safety issues, analyzed this data in order to interpret the data and evaluate how their plant compared to other auto manufacturing facilities. This report represents the findings of that analysis.

Key Findings

- **Tesla's total recordable incidence rate (TRIR) in 2015 was 31 percent higher than the industry-wide incident rate** (8.8 injuries per 100 workers, compared to 6.7 for the automobile manufacturing industry as a whole). The TRIR represents the average number of nonfatal injuries per 100 full-time workers. This means that workers at the company's Fremont plant were injured more than the average automobile industry workers.
- **Tesla's total injury rate for 2016 was 8.1 injuries per 100 workers.** While official industry-wide statistics are not yet available for 2016, based on the previous three years of industry data it is very reasonable to expect that the company's rates will again surpass the industry-wide incident rate ("industry rate"), which has stayed relatively constant over time.
- **The rate of serious injuries at Tesla's Fremont plant – those that result in days away from work, restricted duty, or job transfer – was approximately double the industry rate for 2015.** This measurement is known as the DART rate ("Days Away, Restrictions and Transfers"). The DART rate at Tesla in 2015 was 7.9 compared to the industry average of 3.9. Tesla's DART rate for 2016 was 7.3, which based on the previous eight years of industry data, it is reasonable to expect will again be higher than the industry rate.

In addition, the report analyzes Tesla's recent public statements that its injury rates have declined, which are based on a comparison of total injury rates between the first quarter of 2016 and the first quarter of 2017. Our conclusion, for reasons detailed below, is that the injury data Tesla has recorded so far for Q1 of 2017 is too preliminary to be considered accurate given Tesla's erratic reporting patterns. And perhaps most importantly, one quarter is not a sufficient length of time to accurately identify a meaningful and lasting trend in injury reduction.

Introduction

Even though the process of assembling a car has become more technologically advanced, work in an auto plant remains a physically challenging job that carries a higher-than-normal risk of injury. The average number of nonfatal injuries per 100 full-time workers for the motor vehicle manufacturing industry is double the rate for all industries — 6.7 injuries per 100 workers,¹ compared to 3.3.²

Over the past several months, workers at Tesla became increasingly aware of the potential safety hazards at the company's flagship vehicle plant in Fremont, California. In April, workers first requested copies of the OSHA Form 300, the log of work-related injuries and illnesses that companies are required by law to make available to their employees. Worksafe, a California non-profit organization that specializes in workplace health and safety issues, analyzed this data in order to interpret the data and evaluate how their plant compared to other auto manufacturing facilities. This report represents the findings of that analysis.

“The reason we asked for Tesla's safety log is simple. We see people getting injured in the plant on a regular basis — people who do the same sorts of jobs that we do,” said Jonathan Galescu, a body repair technician at Tesla who obtained the logs. “We want to know — in fact, we need to know — the facts about how often workers are getting injured, and how those injuries are happening. It took us several attempts just to get management to give us the information they're required by law to provide.³ It shouldn't have to be that way. Workers shouldn't have to risk retaliation just to learn more about safety in the workplace.”

Our examination of Tesla's historical record on health and safety comes at an important moment. In recent months, safety at Tesla has increasingly become a matter of public interest as workers at the company begin to speak out about issues that concern them. Tesla responded by releasing data that it says shows the company exceeds industry standards — first in a February e-mail to employees that claimed its injury rate was less than half the industry rate,⁴ and most recently in a May 14 posting on the company's official blog that repeats similar claims.⁵

It's important to note that these numbers may not account for the full extent of work-related health impacts experienced by Tesla workers because the numbers reflect acute incidents rather than illnesses that develop over time. Illnesses such as cancer, effects on reproduction or child development, and many respiratory diseases, which are caused by workplace exposures to chemicals, usually have long latency periods. So the connection between workplace exposures and illness is not always apparent to workers, employers or even to health care providers. This means that occupational illness is routinely missed from reporting. This is especially important because the U.S. Centers for Disease Control and Prevention (CDC) consistently finds that deaths from occupational illness outnumber fatal injuries by at least tenfold each year. The most recent data show 53,000 disease deaths compared to 4,836 fatal injuries.

U.S. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (April 26, 2017). Workers Memorial Day, April 2017. Available at <https://www.cdc.gov/niosh/topics/workmemorial>.

As the remainder of this report will show, these figures are only for the first several months of 2017, may be incomplete, and do not paint a complete picture of Tesla’s safety record. Nor are injury rates — also referred to as “incidence rates” — the only way to evaluate a company’s track record on safety. This report will present a more complete view, by the numbers, of how Tesla measures up when it comes to safety. It begins by examining Tesla’s own injury data for 2014, 2015, and 2016. The incidence rates for these years are far higher than the partial-year data that Tesla has reported publicly, which only cover the first quarter of 2017. Next, the report evaluates the validity of Tesla’s claims that injury data from the first quarter of 2017 represents major progress in the company’s safety performance. The report concludes with testimony from several Tesla workers, some of whom have safety concerns that might not be captured by the official data for many years, if at all.

Tesla's Health and Safety Record, 2014–2016

Tesla's injury and illness reports submitted to OSHA reflect an overall injury rate at the company's Fremont plant that was notably higher than the industry rate in 2014 and 2015. Tesla's total recordable incidence rate (TRIR) in 2015 was 8.8 injuries per 100 workers, while the mean injury rate in the automobile manufacturing industry was 6.7 injuries per 100 workers. In other words, the plant's incidence of recordable injuries at the plant is 31 percent higher than the industry rate. This means that workers at the company's Fremont plant were injured more than the average automobile industry workers.

Although the U.S. Bureau of Labor Statistics (BLS) has not yet released final industry-wide injury rates for 2016, Tesla's TRIR will almost certainly exceed the industry rate again in 2016. As the table below shows, the industry wide TRIR rate for automobile manufacturing (NAICS Code 336111) has stayed fairly constant over time.⁶

Auto Manufacturing TRIR Rates by Year

2008	2009	2010	2011	2012	2013	2014	2015
6.8	7.3	7.7	6.7	7.2	7.2	7.3	6.7

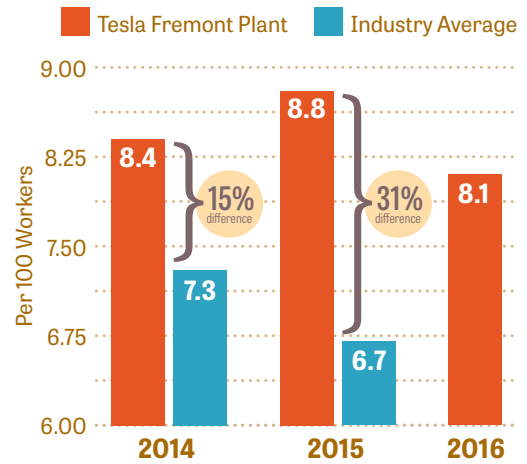
The TRIR yields an important but incomplete picture of workplace safety because it captures injury occurrence but not severity. The most serious nonfatal injuries result in days away from work, restricted duty, or job transfer. Worksafe analyzed the rate of this type of injury — known as the DART rate — and found that workers at the Fremont plant have experienced a much higher rate of serious injury than the average automobile industry worker. The DART rate at Tesla in 2015 was 7.9 compared to the industry rate of 3.9. In other words, Tesla's DART rate is approximately double the industry rate.

As with the TRIR, it is likely that when the BLS releases the 2016 data Tesla will again exceed industry averages for the DART rate, which has also stayed fairly steady over time:⁷

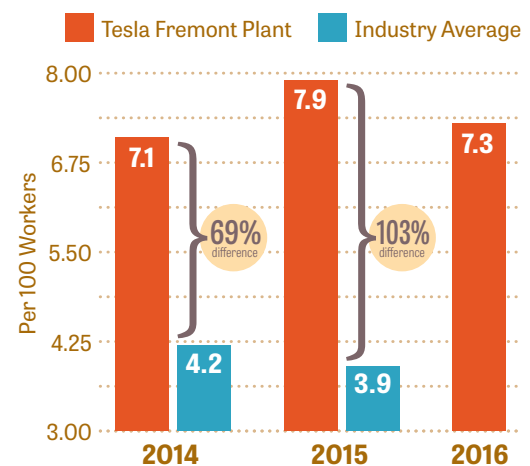
Auto Manufacturing DART Rates by Year

2008	2009	2010	2011
3.9	3.9	4.1	3.8
2012	2013	2014	2015
3.8	3.7	4.2	3.9

Total Recordable Incidence Rate (TRIR)



Days Away, Restricted Duty, or Transfer Rate (DART)



Evaluating Tesla's Recent Claim: Comparisons Between 2016 & 2017

Worksafe attempted to evaluate the company's claim that there is a lower incidence rate in the first quarter of 2017 than in the first quarter of 2016. Unfortunately, sufficiently reliable data are not available to make this evaluation, nor do we have access to the number of employee hours worked in 2017, which would be necessary to determine injury rates for this year. Tesla's significant recent revisions to both its 2016 and 2017 injury data call into question the reliability of the company's recordkeeping. The injury data Tesla has recorded so far for Q1 of 2017 is too preliminary to be considered accurate given Tesla's somewhat erratic reporting patterns. Moreover, one quarter is not a sufficient length of time to accurately identify a meaningful and lasting trend in injury reduction.

An example of our concern about data reliability is Tesla's significant revisions to its 2016 data, made earlier this month. Worksafe performed a detailed analysis of both versions of the 2016 OSHA 300 logs that were provided to workers – one dated February 1, 2017, and the other dated May 3, 2017. In the annual injury and illness data that Tesla submitted to Cal/OSHA on February 1, 2017, the company reported 705 reportable injuries, including 139 injuries resulting in the injured worker missing days of work, and 507 injuries requiring the worker to be placed on restricted duty or be temporarily transferred to another position (collectively "restricted duty"). In aggregate, the injuries resulted in workers missing 4,468 days of work and spending 18,035 days on restricted duty.⁸

On May 3, 2017, Tesla amended its 2016 report. The new report contained 840 reportable injuries, 135 more than

previously reported. The number of injuries involving days away from work nearly doubled to 267, and the aggregate number of work days missed due to injuries tripled, from 4,468 to 13,608. While the amended report reflected 493 restricted duty cases, a slight decline, the number of restricted duty days reported almost doubled, from 18,035 to 33,314.⁹

Worksafe also analyzed Tesla's 2017 injury logs, which have also changed significantly since the company's recent claims of success in reducing injuries in the first quarter of 2017. The logs Worksafe analyzed covered the period from January 1 to approximately April 20, 2017. In April, Tesla provided a log showing 100 injuries, including 22 lost time injuries resulting in 164 lost work days and 80 restricted duty injuries resulting in 1852 restricted duty work days. A few weeks later Tesla produced a revised log for the same period showing 146 injuries, including 40 lost time injuries resulting in 632 lost work days and 96 restricted duty injuries resulting in 3,829 restricted duty days.¹⁰

2016 OSHA 300 Data Submissions

Feb 2017 report	May 2017 revision	Discrepancy	Percent Change
705 injuries	840 injuries	135 more injuries	19% increase
139 lost time cases	267 lost time cases	128 more lost time cases	92% increase
507 restricted duty cases	439 restricted duty cases	68 fewer restricted duty cases	13% decrease
4,468 missed days	13,608 missed days	9,140 more missed days	205% increase
18,035 restricted duty days	33,314 restricted duty days	15,279 more restricted duty days	85% increase

Notably, the 2017 totals for days of lost work and restricted duty show a significant undercount compared to what will be reported at the end of the year for this period. Many of these workers appear to still be off work or on restricted duty, and their days in that status will continue to accrue. Also important to note is that much of Tesla's plant operations were shut down from February 18 to February 28 for maintenance, which almost certainly artificially reduced the number of injuries in the first quarter of 2017.

We are not aware of any explanation for Tesla's significant upward adjustments to its injury logs for 2016 and 2017.

Tesla's injury logs also show that a significant number of cases are not recorded at the time of injury, making any mid-year attempt to evaluate injury rates premature. According to its revised 2016 report, in the first quarter of 2016 Tesla logged 145 injuries. However, Tesla subsequently recorded another 30 injuries that occurred in Q1 of 2016 but were not logged when the incidents occurred as required by OSHA regulations. As a result of injuries often logged months after the incident, Tesla's Q1 2016 lost time injuries rose from 48 to 59, restricted duty injuries from 80 to 96, lost time days from 3,438 to 3,994, and restricted duty days from 7,228 to 8,652. The erratic reporting chronology suggests Tesla needs to take steps to improve its system for timely logging of injuries and illnesses.*

Relying on 2017 injury data to reach any conclusions about safety trends at the plant is premature and could have misleading results. Notwithstanding those significant limitations, the available 2017 data show some reduction in the number of injuries, although more serious injuries, ones resulting in days away from work or restricted duty, do not appear to be significantly reduced. Ultimately, however, the takeaway is that it is not possible to verify from the limited data available whether safety and health in the plant is improving.

*Another anomaly in Tesla's 2016 reporting was the high number of incidents resulting in exactly 14 days of restricted duty. From February to May 2016, 120 of the 148 recorded injuries that required a worker to be placed on restricted duty resulted in 14 days of restricted duty, suggesting 14 days was a default minimum period for reassigning injured workers. Workers should only be kept on restricted duty if they are unable to resume their regular job duties. Mandatory minimum restricted duty can discourage injury reporting because they often force workers to accept pay reductions when reassigned to less strenuous but lower skilled jobs. We do not know if this was Tesla's practice, but if it was it appears to have ended after a few months.

Charley Briese | Production Associate, General Assembly



On May 31, 2016, Tesla management made the following entry into its injury log related to a worker in the General Assembly department named Charlotte Briese: “Sprains, Strains affecting the Shoulder occurred from Unknown caused by Unknown.” But her injury isn’t, in fact, a mystery. It’s part of a nearly three-year ordeal that reveals a lot about just how difficult it can be to work at Tesla — even if, like Charley, you just recently turned 21.

“I started working at Tesla in August 2014. I was so excited. I felt like I was part of the future. I moved to North Stockton and was driving 70 miles to get to work every day.

That was the only place I could afford a one-bedroom apartment. I was making \$17 an hour — I didn’t mind,” Charley said. “But in the three years I’ve been working there, I’ve been injured three times. After working there for three years, it’s just unacceptable that I’ve been injured this many times and to this degree.”

Charley’s first on-the-job injury came in July 2015. Her position at the time required her to pull down a hanging drill three times a minute for 12 to 16 hours a day. On a 12 hour shift, that means she made the same motion about 2,200 times a day, or 15,000 times a week, or 60,000 times a month. “After six months I had severe tendinitis in my elbow and wrist,” Charley said. The injury was severe enough that she had to go on medical leave until October of that year.

In April 2016, she was injured again when a torque gun slipped from her hand. It crushed her thumb, and she was transferred to light duty in the plant for about a month.

“When I came back, I was rotated to a new station,” Charley said. “I was working on the Model S, building the side view mirror and putting the skull caps on the mirrors. It takes a lot of strength to put them on, and it’s very fast paced. I was uncomfortable starting on it right away, after being on light duty for a month, and I raised my concern to my lead. But I was told that if I didn’t feel comfortable doing it I should go home and not come back. So I stayed.”

“After three days I told them I couldn’t lift my arms above my head. It was too painful,” she continues. “I was sent to the nurse and she changed my restrictions to show that I should keep my elbows at my waist and not lift more than ten pounds. Eventually I was put on a leave of absence, and my pay was reduced. I had to move because I couldn’t afford my apartment anymore.”

This third injury, suffered in late May 2016, resulted in her being placed on medical leave starting in July 2016. Charley’s leave has extended into 2017. But because of a technicality in the law — which allows companies to stop counting after a worker reaches a total of 180 days on leave or on job transfer¹¹ — Tesla’s recordkeeping only reflects that she has missed only 154 days due to injury, and spent 26 days on job transfer. While this is legal, it does not capture the full extent of her injury.

“I still believe in Tesla’s mission, and hope to have it be a job that I’m comfortable in — a career,” Charley said. “But if things don’t change, what’s keeping Tesla from firing me for no reason, or working me until I become permanently disabled?”

Alan Ochoa | Production Associate, General Assembly



When Alan Ochoa started working at Tesla in 2014, his job was to assemble door panels, a job that involved spot welding, operating a hand drill, and installing sound insulating materials. “I was the only one who was under 30 years old, one of the only ones able to keep up with the line,” he said. “But we started falling behind. The number one rule is that you can’t stop the line. They call it the Money Line – if you stop it for ten minutes they say it’s a million dollars out the door.”

The frantic pace took its toll. “We got behind, we worked ten times harder to keep momentum up, and so we could have a buffer for the next shift,” he explains. “After a while I realize I’m dropping things, can’t hold on to them. Then the pain started.”

When Alan talked to management about the pain he was experiencing, he was transferred to another job in the same work area, assembling door handles. That work was “mostly small tedious things” such as threading wires and installing tiny motors. This supposedly “light duty” work actually made the symptoms worse. “When your hands are hurting and you’re losing grip, folding small wires in a very specific way doesn’t work,” he explained.

Just getting a diagnosis proved frustrating. “Tesla’s workers compensation doctors misdiagnosed me twice,” Alan said. “They told me it was a strain, gave me ibuprofen and sent me back to work. That didn’t work. Eventually I was diagnosed with carpal tunnel in both wrists.”

Alan was put on medical leave in May 2015. But as with Charley, Tesla only had to report Alan’s first 180 days away from work assigned to other job duties due to injury.¹² Tesla’s recordkeeping captures just 79 days Alan missed due to injury, and 101 days on job transfer. While this is legal, it does not capture the full extent of his injury.

Alan wants to work, and returned to Tesla for one month in 2016. But the station he was assigned to required him to type on a laptop. After one week, he had a flare up that lasted three weeks, and was removed from the light duty program again.

“I can’t drive in traffic because my car is a manual – it puts me in excruciating pain,” Alan said. “When I have a flare up it lasts for weeks. It feels like my hands are in a vice grip. All I can do is take a pill that I saved from my surgery and hope for the best.”

Alan is hoping to go back to work, but isn’t sure what he’ll be able to do. “To be honest I don’t know what my future is.”

Conclusion

The two stories above, from Charley Briese and Alan Ochoa, represent just two of the hundreds of stories behind the entries in Tesla's injury logs. Tesla has, in fact, said that one of its objectives is "creating the safest car factory in the world," and that its goal is "to have as close to zero injuries as humanly possible."¹³ That is a laudable goal — and an ambitious one. To achieve it, Tesla will have to apply the same ingenuity to addressing safety concerns as it does to designing innovative and exciting electric vehicles.

A skilled engineer knows that one part of solving a challenging problem is to view the data objectively, and listen to what it tells you. The alternative — ignoring objective information in conflict with the vision — will lead to system failures. The same is true in addressing safety concerns. But responding to injury data, by itself, is not enough to solve the problem. When a design challenge includes making a large and complex workplace safe for thousands of workers, the most important source of information is the workers themselves. They have the most experience performing the individual tasks that happen every day on the plant floor, and with that experience comes knowledge. It is widely accepted that employee involvement is an important part of an effective workplace safety program.¹⁴ A health and safety program can only be effective if employees are actively engaged and have a genuine and respected voice with management. When it comes to health and safety, employees are the most important stakeholder, and have the most to lose when management doesn't listen and is not responsive to their concerns.

¹ U.S. Bureau of Labor Statistics, U.S. Department of Labor, "Incidence rates of nonfatal occupational injuries and illnesses by industry and case types, 2015," available at <https://www.bls.gov/iif/oshwc/osh/os/ostb4732.pdf>, accessed May 17, 2017, NAICS Code 336111.

² U.S. Bureau of Labor Statistics, U.S. Department of Labor, "Highest incidence rates of total nonfatal occupational injury and illness cases, 2015," available at <https://www.bls.gov/iif/oshwc/osh/os/ostb4736.pdf>, accessed May 17, 2017.

³ According to both federal and California law, employers are required to provide copies of the OSHA 300 and OSHA 300A logs within 24 hours of a request by current or former employees. The law requires that the information be provided to employees in an un-redacted form, with all information visible for their review.

⁴ Fred Lambert, "Elon Musk addresses Tesla employees in leaked email: claims higher comp than Ford/GM, lower incident rate, & new 'roller coaster'," Electrek, February 24, 2017, available at <https://electrek.co/2017/02/24/tesla-union-elon-musk-addresses-employees/>, accessed May 17, 2017.

⁵ "Creating the Safest Car Factory in the World," May 14, 2017, available at <https://www.tesla.com/blog/creating-the-safest-car-factory-in-the-world?redirect=no>, accessed May 17, 2017.

⁶ U.S. Bureau of Labor Statistics, U.S. Department of Labor, "Incidence rates of nonfatal occupational injuries and illnesses by industry and case types," 2008-2015, available at <https://www.bls.gov/iif/oshwc/osh/os/ostb4732.pdf>, accessed May 20, 2017, NAICS Code 336111.

⁷ U.S. Bureau of Labor Statistics, U.S. Department of Labor, "Incidence rates of nonfatal occupational injuries and illnesses by industry and case types," 2008-2015, available at <https://www.bls.gov/iif/oshwc/osh/os/ostb4732.pdf>, accessed May 20, 2017, NAICS Code 336111.

⁸ Cal/OSHA Form 300, Calendar Year 2016, dated February 1, 2017.

⁹ Cal/OSHA Form 300, Calendar Year 2016, dated May 3, 2017.

¹⁰ Cal/OSHA Form 300, Calendar Year 2017, data through approximately April 20, 2017.

¹¹ 29 C.F.R. 1904.7(b)(3)(vii).

¹² 29 C.F.R. 1904.7(b)(3)(vii).

¹³ "Creating the Safest Car Factory in the World," May 14, 2017, available at <https://www.tesla.com/blog/creating-the-safest-car-factory-in-the-world?redirect=no>, accessed May 17, 2017.

¹⁴ See, for example, U.S. Occupational Safety and Health Administration, "Recommended Practices for Health and Safety Programs," available at <https://www.osha.gov/shpguidelines/worker-participation.html>, accessed May 19, 2017; and the Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, "Fundamentals of Total Worker Health Approaches," December 2016, available at https://www.cdc.gov/niosh/docs/2017-112/pdfs/2017_112.pdf, accessed May 19, 2017.

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