



Nippon Steel & Sumikin Stainless Steel Corporation (NSSC)

Creating a heatstroke-free workplace

Award: Safety
Category: Workplace improvement

Challenge

NSSC holds the safety of employees as one of the company’s key objectives. NSSC has made continuous improvements to prevent industrial accidents among our employees. The prevention of heatstroke is a distinct example of our commitment.

Heatstroke is a general term referring to disorders that are brought about by an improper balance between water and salt levels in the body, or problems with the body’s temperature-regulating system. These can be triggered by factors such as heat and humidity in the work environment.

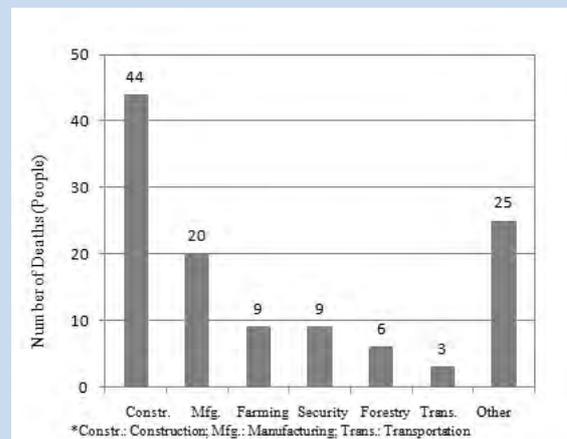
Symptoms of heatstroke include muscle pain, heavy perspiration, nausea, and physical weariness. If the condition becomes severe, the person can become disoriented and death can occur. Heatstroke can quickly become more serious if rehydration is neglected.

Summer in Japan is characterised by high temperatures and humidity, so there is a high risk of heatstroke. For example, during 2013 approximately 58,000 people were transported by ambulance to hospitals due to heatstroke during in the summer (June to September). Of those people, 88 died.

Approximately 20 people die from heatstroke each year in Japan while working, and this has become a

serious issue. An examination of fatal accidents due to heatstroke by industry over the past four years (2010 to 2013) shows that the manufacturing industry is the second-worst affected after the construction industry.

NSSC has not had a fatal accident since the company was established. However, in this time the ambulance has been called five times for problems related to heatstroke. Taking preventative measures has become an urgent task.



Manufacturing has the second-worst record for heatstroke-related deaths in Japan

Action

There are other factors which contribute to heatstroke in addition to high temperature and humidity. These include inadequate fluid and salt intake while working, and individual factors such as our ability to acclimatise to heat.

Actions were developed in the following areas:

- Improvement of workers' awareness of the seriousness of heatstroke
- Provision of information about proper fluid and salt intake
- Measures to help workers acclimatise to heat and manage their personal health
- Improvement of the work environment and protective equipment.

The implementation of heatstroke mitigation measures at NSSC has evolved in three stages since it was first recognised as an issue in 2008. The three stages are:

1. Autonomous activities by individual departments (prior to 2008)

Activities to raise awareness of heatstroke were left to individual departments. Actions included installation of meters, heatstroke drills and provision of water and salt supplements.

2. Start of company-wide management (2009 to 2013)

In 2009, NSSC implemented a company-wide policy to manage heatstroke which established common rules in all departments. Activities started in May each year to raise awareness of heatstroke.

As part of the new policy, workers were required to promptly report cases of physical illness.

Instead of temperature and humidity meters, standard wet bulb globe temperature (WBGT) meters were installed. Improvements were also made to protective equipment.

The main issue identified in this stage was that there was no record of heatstroke mitigation being implemented. This meant our plan-do-check-adjust (PDCA) cycle could not move forward.

3. Quantitative execution management and transition to PDCA cycle (since 2014)

In Stage 3 we have started to record and manage fluid and salt intake, rest times, and the physical condition of each employee.

Outcome

Since the company was established, NSSC's activities have ensured that no industrial accidents have occurred which resulted in absence due to heatstroke.

The summer of 2013 was particularly hot, leading to 30 fatal accidents throughout Japan. At NSSC, there were no ambulance requests arising from heatstroke.

In addition to the measures detailed above, the company has reduced the risk of heatstroke in the workplace by implementing environmental improvements such as cool houses and ventilating interiors with large fans.

The understanding of the seriousness of heatstroke has advanced in the workplace. Each department demonstrates its ability to promptly attend to physical illness. The level of drills has also risen in preparation for an unlikely heatstroke event.

In the future, we will consider combining fluid and salt supplement intake records and physical condition data. This will enable us to create rules regarding the optimal quantity and timing of fluid and salt supplement intake for each workplace.

We would also like to support one-person working locations. These occur in non-routine operations such as

construction. They are difficult to monitor but we want to continue our unbroken record of zero instances of heatstroke.



Cool House



Large Fan

NSSC has installed fans and cool houses to prevent heatstroke