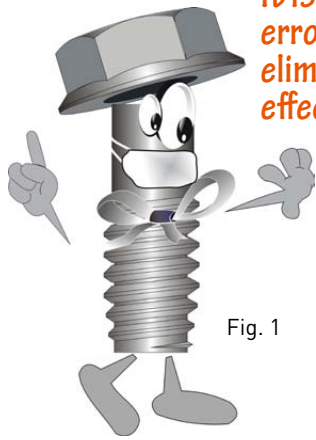


Protection Above All

by Jozef Dominik



It is better to prevent errors than to eliminate their harmful effects ex post!

Fig. 1

Readers certainly understood the symbolic meaning of the attached **Fig. 1**. Hard to get around the most recent topic of the day - the spreading dangerous pandemic named Covid-19. The present generation was not ready for it, because it had never experienced anything like this. Only the sporadic literary sources are known to us the deadly effects of for example: Spanish influenza (1918 - 1920) - worldwide distribution, 50 million victims (according to Nature, 2004) or HIV (since about 1980, still ongoing) - worldwide prevalence, 20 million victims, 40 million infected (by the end of 2003 according to the WHO).

Why do we talk about it on this magazine? The answer is simple; because there is very current topic and analogy between the harmful virus and a "virus" called corrosion. The only difference is that the first case concerns living beings and the second case concerns metallic materials, in particular steels. However, they have one thing in common – the most effective measure is prevention. **Fig. 2**. shows

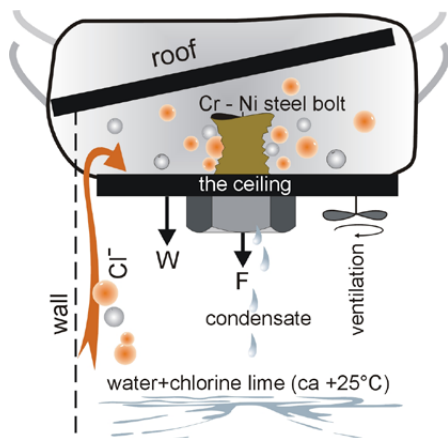


Fig. 2. The Causes of the Indoor Swimming Pool Accident

a slightly modified image, already known to Fastener World readers, to demonstrate the causes of the indoor swimming pool accident. If a competent designer understood the specifics of the corrosion process in indoor swimming pool with chlorinated water, disaster did not have to occur. The solution was to prevent harmful chlorine vapors from entering the space between the roof and the ceiling of the pool.



Fig. 3. Typical Example of the Impact of an Aggressive Environment

Similarly, the case in **Figure 3**. It is a typical example of the impact of an aggressive environment. If the designer had already taken the appropriate anti-corrosion measures before assembly, such huge replacement costs would not have to be incurred. And, we could go on with many other similar examples.

Every corrosion is governed by the principle of cause and effect. **Eliminate the cause, avoid corrosion!**, is the basic rule in the fight against corrosion. It is known from various literary sources that corrosion impoverishes national income by about 7%, which is an astronomical sum in a global sense. The forecasts are not optimistic at all. Waste products during production (**Fig. 4**) will continue to grow.

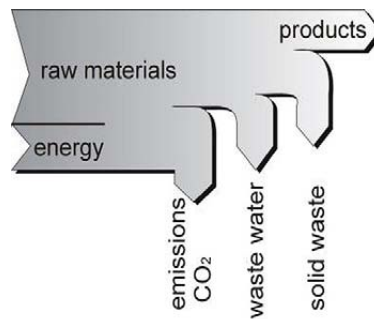


Fig. 4. Waste Products During Production

Warning is a quote from the lecture by Miriam Behrens - Pro Natura Foundation at the 5th Economic Conference Public Eye on Davos: "It would be naive to think that companies will volunteer to protect the environment or respect the interests of the affected population.

The main goal of the groups is and will remain profit maximization". The question is to what extent the plant kingdom is able to absorb excess CO² and convert it to oxygen O².

However, let us return to corrosion, which also depends on the aggressiveness of the environment. Researchers are constantly looking for more effective methods of corrosion protection but the universal protection medicine of bolted joints that would be equally effective for all types of corrosion does not exist. Each corrosion must be approached individually, as it is always a unique system. The example in **Fig. 2**. shows that even stainless steel is not always the right solution. Very dangerous are the invisible corrosion cases to naked eye. Such is e.g. hydrogen embrittlement. Hydrogen is often introduced during manufacture from operations such as forming, coating or cleaning and surface treatment. The only way to eliminate hydrogen embrittlement is to avoid contact with hydrogen. For fasteners this means replacing galvanic methods of surface treatment. The current market offers several such processes, and it may not be the usual hot-dip galvanizing.

Summary

The article aims to point out the negative consequences of increasing the aggressiveness of the environment that surrounds us. This applies not only to living organisms but also to inanimate matter. In both cases, protection is important. Let the current Covid-19 pandemic be a memento for humans. You don't like to play with nature. It can be cruelly avenged.

