

WHO'S AFRAID OF HYDROGEN?

70 YEARS AFTER THE ZEPPELIN ACCIDENT AT LAKEHURST THE HINDENBURG SYNDROME IS FADING AWAY

Most people in the industrialised world of today associate “Hydrogen” with rather positive things. A number of sociological studies over the past years have shown that in particular younger test persons knew hydrogen as clean fuel for tomorrow’s cars and generally as a clean and sustainable energy carrier which can bring renewable energy to the customer according to the latter’s demands.

This can not be taken for granted. Not so long ago many people suffered from the “*Hindenburg syndrome*”: in their mind hydrogen was an immensely dangerous substance.

This was an effect of the Zeppelin crash at Lakehurst, the 70th anniversary of which will be in a few days. In the late afternoon of May 6, 1937 the German Zeppelin dirigible LZ 129 *Hindenburg* went up in flames and was completely destroyed during the docking manoeuvre at Lakehurst (New Jersey, USA). 35 of the 97 persons on board and one member of the ground crew died. The emotional effect of the event was greatly enhanced with the newsreels and the live recording by the radio reporter Herbert Morrison („... *it’s a terrific crash ladies and gentlemen ... oh, the humanity and all the passengers!*“) which made it a key event of the media age. Lakehurst also marked the end of commercial airship transport.

Both a US and a German investigation committee soon published reports according to which the ignition of escaped hydrogen gas had been the cause of the accident. After all the ship had 190.000 m³ of it on board to provide lift. But they never presented any real evidence for this assumption. Investigations by the company which had built the ship pointed in a quite different direction. Nothing of this evidence was published, however, and the general public since then suffered from the “*Hindenburg syndrome*”.

Today there is general agreement that the hydrogen was not the initiating cause of the accident. The key factor was rather the shroud of the airship that was covered with a non-conductive, flammable coating. The arrival of the ship at Lakehurst was not long after a thunderstorm. There were considerable potential differences between ship and ground. The special type of docking manoeuvre preferred in the USA helped little to equalize the charge. Under these conditions an electrical discharge could be generated easily which ignited the shroud, and disaster took its course. The hydrogen gas along with other airship materials contributed to the conflagration.

The former NASA member Addison Bain played a key role in dragging these facts to light. For many years he had participated in building the NASA infrastructure for the supply of space vehicles with hydrogen fuel. In his leisure time and after his retirement he questioned eyewitnesses, dug himself through files, and made experiments with original patches of the *Hindenburg* shroud. He received valuable support from the Zeppelin Museum at Friedrichshafen (Germany) which opened

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its archives for him. Preliminary findings were released in 1997. Further research, interviews and analysis is now documented in the 2004 book, *The Freedom Element*.

Addison Bain experiences a progressive fading of the *Hindenburg* syndrome. He comments: “I say this because a lot of progress is being made. Every year I am invited to speak in public about hydrogen. I ask the question ‘Can someone tell me what happened to the *Hindenburg*.’ The reply; ‘I read somewhere it was the paint on the airship.’”

Ulrich Schmidtchen, spokesman and safety expert of the German Hydrogen and Fuel Cell Association (DWV), comments on the fading of the Hindenburg syndrome: “For the younger generation in particular the Lakehurst accident 70 years ago is just history, very similar to the sinking of the *Titanic*. When we discuss hydrogen energy today the response we feel is mainly positive.”

Handling fuel inappropriately is dangerous, and hydrogen is no exception from this rule. But experiments and studies show on a very regular basis that the dangers associated with hydrogen are by no means greater than in the case of oil, natural gas, or coal, just maybe a bit different. Keeping hydrogen in mechanically resistant pressure vessels is rather an additional safety feature. And hydrogen is neither explosive nor toxic, radioactive, or corrosive; its combustion leaves clear water behind.

A more detailed text by Bain and Schmidtchen on the Lakehurst accident under the title “Afterglow of a Myth — Why and how the *Hindenburg* burnt” is available on the DWV website (<http://www.dwv-info.de/e/index.html>, Publications, DWV statement No. 4 of January 18, 2000).

You can contact the Zeppelin-Museum at Friedrichshafen by phone (+49 (7541) 3801-0) or in the web (www.zeppelin-museum.de).

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