# "Are polychlorosilanes really oxidizing agents?" Investigation of the reaction products of the international UN Test O.2

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The polychlorosilanes hexachlorodisilane (HCDS), octachlorotrisilane (OCTS), and decachlorotetrasilane (DCTS) formally satisfy the criteria for "*oxidizing substance"* as defined in the UN O.2 test[1]. This result contradicts the properties of chlorosilanes as described in the literature and known from production experience.

By investigation of the reaction products (mostly $SiO_2$) from the UN O.2 test reactor using IR and Raman spectroscopy and XPS, it has been possible to show that the results arise not from the oxidizing properties of HCDS, OCTS, or DCTS but from the prescribed test substance cellulose. The reason behind this false positive result is the well-known high affinity of silicon for oxygen.

It is proved that the correctly performed UN O.2 test leads to false positive results, and that the polychlorosilanes (naturally) have no oxidizing action and therefore need not be classified as "*oxidizing substances"*

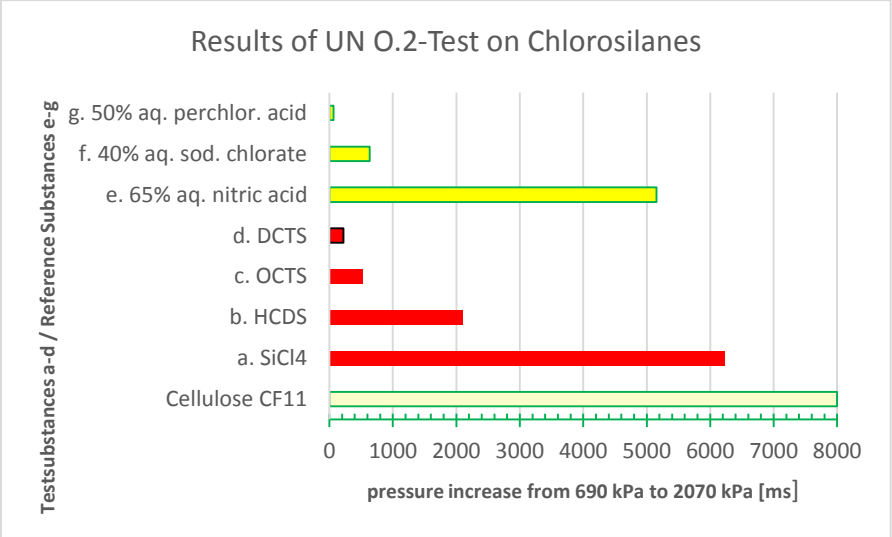


**Figure 1.** Results of the UN-O.2-Test[1] for Polychlorosilanes

[1] UN Manual of Tests & Criteria, 6th revised edition, Section 34