



Ship type: Container Ships    Trade Area: Worldwide

## **Bulletin 108 -09/99 - Calcium Hypochlorite (Hydrated) - Update**

**We refer to Bulletin 57 - 7/98.** The Association has recently received further information of which members should be aware. Little has changed from earlier advices in that Dr J.H. Burgoyne and Partners still strongly recommend that this material is stowed on deck in such a way as to avoid heating by direct sunlight (or any other source of heat). However more recent investigations appear to indicate that the temperature at which reactions will start reduces as the size of packaging increases ie the larger the package the lower the critical temperature.

The development is still under investigation, but in the meantime and until we have definitive advices from the relevant authorities, we strongly recommend that expert advice on the carriage of this commodity is taken prior to shipment. The Association will put members in contact with consultants if requested.

Dr J.H.Burgoyne & Partners have reported as follows:

"On behalf of clients of this firm, we have commissioned a laboratory to undertake research to determine the critical temperature of the hydrated form of high strength calcium hypochlorite UN 2880, (IMDG Code Page 5138). (The critical temperature is the temperature at which for a given sample size and weight a runaway reaction begins. With this material, it is often followed by fire and/or explosion). The current IMO recommendation is that this material is not to be exposed to a heat source in excess of 55°C for longer than a 24 hour period.

In July 1998 we reported that the preliminary results from our research project to determine the critical temperature of the hydrated form of high strength calcium hypochlorite indicated that for the type and size of packaging used routinely to ship this material around the world, the temperatures at which the runaway reaction is likely to begin may be much lower than that recommended by the IMO.

Experiments have now been completed on one size of package often shipped (40kg) and we feel it appropriate to issue a further general alert to the shipping community.

The results show that the critical temperature for a 20' container load of hydrated calcium hypochlorite of 40kg plastic kegs is likely to be below 45°C. Research work is continuing and much larger drums of the material (nominal 200kg) are being studied. However by extrapolation, from the results so far obtained, we have calculated that a single 200kg drum of material is likely to have a critical temperature of less than 40°C and a 20' container packed with such drums a value of less than 30°C.

It is our understanding that the ambient temperatures of some holds of certain container ships can reach and indeed exceed these values. Accordingly, it is suggested that this material is not packed in large receptacles (unless in a temperature controlled environment) and in any event is not carried in the holds of such ships. Stowage on deck should be so arranged to avoid the heating of this material by direct sunlight (or any other source of heat).

We must stress that this research is presently subject to legal professional privilege as well as client confidentiality. However, in view of the potentially serious implications for the shipping community indicated by the research, our clients have again authorised and requested us to make known publicly our concern. In so doing, our clients do not waive their privilege and confidentiality in this research."

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