

The honeycomb structure TIMaxCA is manufactured from plastic films of modified cellulose triacetate. Cellulose acetate is eminently suitable as transparent insulation material (TIM), because this film has a high absorption coefficient for infrared radiation and thus gives good thermal insulation. The film is stable with respect to ultraviolet radiation and temperature. The technical data are presented in the data sheets. The film/honeycomb can nevertheless show ageing effects under extreme conditions. An estimate thereof is given below.

UV stability:

Even under sustained strong UV irradiation the film shows no signs of developing a yellow tinge. However, sustained UV irradiation produces slight brittleness of the plastic material that impairs the mechanical properties of the plastic. If the honeycomb structure is not subjected to mechanical stress, it retains its structure and thermal insulation properties.

Temperature stability:

The film can be thermally stressed briefly up to 190°C. In the case of sustained temperature stress the film and thus the honeycomb structure becomes brittle. If the honeycomb is not subjected to mechanical stress, it retains its structure and thermal insulation properties.

Stability with respect to water and moisture:

Severe exposure to moisture should be avoided as far as possible. In particular, water vapour at elevated temperatures makes the film and thus the honeycomb structure brittle. Therefore the honeycomb structure should as far as possible be utilised in a dry environment.

Normally a combination of UV irradiation and temperature stress is encountered. Every plastic material starts to age under such stress conditions (UV irradiation, elevated temperature, moisture). Therefore it is advisable to keep the stress factors as small as possible in order to optimise the service life of the honeycomb structure. For this purpose, for example, low iron content glass should be avoided as outer covering material and instead standard glass should be used, to reduce the transmittance for UV radiation. The service life of the honeycomb structure depends on the individual application and the climatic conditions. Therefore the service life should be tested individually by the user for each application.

