3.1.2 Cured Material

Before performing the test, the required sample mass was cured for 12 hours at ambient temperature between two copper sheets according to the manufacture instructions.

Results:

Sample Temperature t_a [°C]	Initial Oxygen Pressure p_I [bar]	Final Oxygen Pressure p_F [bar]	Reaction on Impact
60	1	20	no reaction*
60	1	25	ignition on 1. impact
60	1	20	no reaction*

* within a series of five consecutive impacts

In two separate tests, each consisting of a series of five consecutive impacts, no reactions of the material with oxygen could be observed at a final oxygen pressure p_F of 20 bar and at a temperature of 60 °C.

4 Summary and Evaluation

A determination of the autogenous ignition temperature (AIT) and an investigation of the aging resistance in high pressure were not necessary as the material are not for use at temperatures greater than 60 °C.

According to DIN EN 1797: 2002-02 „Kryo-Behälter - Verträglichkeit von Gas/Werkstoffen" and to ISO 21010: 2004-07 „Cryogenic Vessels - Gas/Material Compatibility" the criterion for a positive reaction of the sample to gaseous oxygen impacts is a temperature rise of at least 20 °C.

On basis of the above-mentioned criterion and the test results, there are no objections with regard to technical safety, to use the Loxeal 83-21 as an anaerobic sealing material or adhesive in piping, valves and fittings, or other components for gaseous oxygen service at following operating conditions:

Maximum Temperature	Maximum Oxygen Pressure
60 °C	20 bar

This evaluation does not cover the use of the nonmetallic material for liquid oxygen service. For this application, a particular test for reactivity with liquid oxygen needs to be carried out.

5 Comments

The test results refer exclusively to the batch of the tested material.

Products on the market that contain a reference to BAM testing shall be marked accordingly. It shall be evident that only a sample of a batch has been tested and evaluated for oxygen compatibility. The reference shall not produce a presumption of conformity that monitoring of the production on a regular basis is being performed by BAM.