

# CNEP

## Centre National d'Evaluation de Photo protection

Ensemble Universitaire des Cézeaux  
24 Avenue des Landais – B.P. 30234  
F – 63174 AUBIERE Cedex

Téléphone: (33) 04 73 40 53 00  
Télécopie: (33) 04 73 27 59 69  
Web : <http://www.cnep-ubp.com>  
e-mail: [cnep@cnep-ubp.com](mailto:cnep@cnep-ubp.com)

### CERTIFICATION

The Centre National d'Evaluation de Photoprotection [CNEP] certifies that the film made and supplied by SYMPHONY Environmental Ltd, Borehamwood, Hertfordshire WD6 1JD, England and referenced as containing 1 % Oxo-Biodegradable Additive DG 12.08, satisfied the 4 requirements of the schedule of conditions laid down under the Protocol for the Evaluation of the Abiotic Oxidability of Oxo-Biodegradable films, designed as AFNOR Agreement AC T51-808.

Under controlled laboratory experimental conditions, it was proved :

1. That the film was not oxidized significantly when maintained in an aerated oven at 60° C during 432 hours (which guarantees a minimum one year lifetime in storage and use in indoor conditions without any mechanical detriment).
2. That the film was photo-oxidized in SEPAP 12-24 at the extent defined in the Protocol (which guarantees that the film accidentally scattered into the environment, should be fragmented after approximately 3 months of exposure to sunlight in European environment) :

$$\Delta \text{abs } 1710 \text{ cm}^{-1} = 1.47 \frac{x}{100} \quad (\text{after } 100 \text{ hours of exposure in SEPAP 12-24,}$$

*x being the film thickness in microns)*

3. That the film was oxidized at the extent defined in the Protocol, after pre-oxidation in SEPAP 12-24 and in a 300 hrs thermo-oxidation at 60° C, that guarantees that the film abiotically degraded after 3 months exposure to sunlight and a 2-3 years in soil, has acquired a biodegradability which could be assessed using the Protocol of AC T51-808 :

$$\Delta \text{abs } 1710 \text{ cm}^{-1} = 3.7 \frac{x}{100} \quad \text{after } 100 \text{ hours of preexposure in SEPAP 12-24}$$

*and 312 hours of thermooxidation at 60°C .*

4. That the oxidized particle ( $\Delta \text{abs } 1715 \text{ cm}^{-1} = 3.75 \frac{x}{100}$ ) were the sole carbon source for *Rhodococcus rhodochrous* to account for the development of that microorganisms population in an aqueous medium containing only oligo elements.  
The cell development showed also that the type of metal stearate used as pro-oxidant and the oxidized groups formed from the PE matrix was not presenting any toxicity towards the *Rhodococcus rhodochrous*, a microorganism living in natural media.

At Aubière, April 28th 2015



Prof. Dr. Jacques LEMAIRE  
Former Head of CNEP (1986-2008),  
In charge of Research on oxobiodegradation.



Prof Dr. Jacques LACOSTE,  
Head of CNEP.