**HEXAFLUMURON (BPR PT18**) **BAITING SYSTEM TO CONTROL SUBTERRANEAN TERMITES IN ITALY**

**In overall Italy termites cause serious damage to historical buildings, artistic wood structures and paper patrimony.** They have great economical importance and are a great threat for our cultural heritage.

Subterranean termites, *Reticulitermes* spp. (Isoptera Rhinotermitidae), are the most destructive; they establish large colonies of up to one million individuals, and their activities have a high impact on human interests. Three species of the genus *Reticulitermes* are known to occur in Italy. *Reticulitermes* *lucifugus* (Rossi) is found in many localities across most of the Italian territory. The recently described species *Reticulitermes urbis* Bagneres, Uva et Clement (Bagnères *et al*., 2003) has been found in some localities in the Adriatic side of the Po Plain and in Apulia (Marini and Mantovani, 2002; Luchetti *et al*., 2004). The North-American species *Reticulitermes flavipes* (Kollar), whose presence in Europe is long time known(Kollar, 1837; Jucci, 1924; Feytaud, 1925; Austin *et al*.,2005; Dronnet *et al*., 2005), has recently been found intwo localities in Lombardy (Ghesini *et al.*, 2010; 2011).

Historical towns in Italy undergo frequent termite infestations because of some peculiar feature of the buildings: unplastered brickwork, crumbling mortars, rising damp, structural wood in walls and ground; floors in direct contact with the ground; internal gardens with old wood, firewood, stumps and damp soil in shadow. Buildings are enclosed in large architectural complexes with no air circulation. Joined buildings aligned along the roads have walls and foundations in common, and can in no way be isolated: this enables termites to move from one building to another. Cryptic habits of *Reticulitermes* make it difficult to recognize the infestation: only mud tubes, swarming or an accurate inspection can locate termite activity before serious damages and sensational destructions.

**Control of subterranean termites is difficult because of their large populations and foraging territories. Baiting system is the more effective remedial control applicable to Italian historical sites which have limited soil access.** In fact conventional chemical approach is most often directed to soil under and around the building, to create a barrier with tens of kg of liquid termiticides, trough which the foraging worker termites cannot pass and survive. If creating an uninterrupted barrier of treated soil proves difficult in small, simple open sites, the effectiveness of these treatments is highly questionable in case of large complex and ancient sites, because of the described structural factors.

**The baiting system based on the chitin synthesis inhibitor hexaflumuron ensures an effective, not invasive treatment active at minimal dosages (0.3-3.4 g for very large sites), by providing proven, long-term protection against termite damage.**

Researches carries on by the University of Bologna demonstrates that Italian subterranean termites can be successfully controlled with hexaflumuron baiting system in dense urban areas of high historical value and minimal open soil access. The hexaflumuron baiting system has been successfully applied in Italy under the supervision of the University of Bologna in several urban sites and historical monuments:

* Bagnacavallo, a lowland town of about 10,000 inhabitants in northern Italy, with an extensive and well established infestation of *Reticulitermes urbis,* recently reported (Campadelli, 1987; Campadelli, 1988; Lozzia, 1990; Marini and Ferrari, 1993) but probably been active for 30-40 years. It’s the largest reported infestation in Europe, extending over 15 hectares in the north-west part of the old town, with active termite populations in many public buildings and hundreds of houses (Ferrari et al, 1996).
* Roma, where severe termite infestations and damages are reported. The first field test site in Rome was Campidoglio, a monumental building used as Rome Town Hall, where termites infested the Library with swarming and destruction of books and wood frames. The second was in the historical building of National Calcography on which lean the famous Fontana di Trevi, and where a termite colony, based in the damp underground cellars, swarmed every year in the exposition hall above.
* Cagliari, Sardinia. In this large Mediterranean island, the termite variety of economical importance is *Reticulitermes lucifugus corsicus* with hundreds of attacks on ancient and modern buildings.

The eventual loss of hexaflumoron would lead to *Reticulitermes* spp. control problems in Italy in the future.

In addition, **the hexaflumuron baiting system is at present the only one used in baits able to control *Coptotermes* spp, that are known as serious pests.** The first finding of *Coptotermes gestroi* (Wasmann) (Isoptera Rhinotermitidae) in Italy and Europe was reported in Sicily in 2011 (Ghesini, Puglia and Marini, 2011). Termites were found on a yacht docked in a boatyard in Riposto (Catania, Sicily) for extraordinary repairs.*C. gestroi* is an important pest of buildings and structures, both in its native range (Yeap *et al*., 2007) and in regions where it was introduced by man (Costa-Leonardo and Arab, 2004; Jenkins *et al*., 2007 and references therein). Shipboard infestations are believed to be the most likely means of *C. gestroi* introduction to new areas (Scheffrahn and Su, 2008). **Considering that *Coptotermes* spp. termites are important pests of buildings and structures, we need hexaflumuron baiting system available in order to ensure the eradication of any possible future infestation, thus avoiding *Coptotermes* spp. settlement and spreading in Italy**.

I am at your disposal for any further   
information you may need

Sincerely

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