COST D42 Network

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Keywords: networking, COST, indoor air quality, conservation technology

1 Introduction

The conservation of cultural heritage is a duty for all nations, due to ethical reasons. Only very slowly decision makers start to understand that caring about cultural heritage and especially about museum, library and archival collections is also a valuable long-term investment for their economy and in the interest of their citizens. The quality of the indoor environment is decisive for the preservation of a collection. Sensitive materials, displayed in an aggressive environment may suffer from chemical attack of pollutants, leading to irreversible damage within only a few weeks of inappropriate exposure. Environmental monitoring campaigns in storage rooms, galleries, showcases and libraries are performed, wherever skilled staff and sufficient resources are available. The interpretation of results on the impact of pollutants on the degradation of the artefacts (in combination with other environmental parameters, such as humidity and temperature) and consequently, any appropriate measure to prevent damage requires a close collaboration between multidisciplinary key players: chemists concerned with environmental effects and material degradation, conservators, conservation scientists, art historians, curators, environmental engineers, show case manufacturers, and even politicians and decision makers concerned with international standards.

2 The Impact of COST D42

Members of COST Action D42, Enviart, explore chemical interactions between cultural artefacts and typical indoor environmental conditions through field studies and laboratory experiments and transfer the results into preventive conservation practice. The Action focuses on the chemical impact of pollutants on materials, thus also considering physical and environmental aspects, materials technology, chemical analytics, emission and harmonisation. Within this action there are 3 working groups (WG) active: (1) on preservation (2) on Analysis and (3) on Guidelines. The last one is cooperates with the European standardisation body CEN (TC346). WG 1 has two focus areas: Degradation & Stabilisation and Prevention to understand changes in chemistry of the object due to the environment. Since the strategic conference in Ohrid (2007) experimental techniques on ageing experiments were improved. Items as the role of light and indoor chemistry and how to evaluate materials were studied including modelling outdoor and indoor air. Improvements were established in the field of showcases and the role of microclimate and control methods as anoxic environments. Analysis (WG2) of heritage materials and environments is challenging as we are dealing with complex systems. COST Instruments such as workshops, training schools were used to discuss indoor air chemistry and non-destructive characterization of material changes. The state-of-the-art was discussed at the recent workshop on NIR/chemometrics for cultural heritage and a Workshop on environmental analysis. It is important to mention the role of industry, as companies have been closely involved in workshop on NIR/chemometrics for cultural heritage and have launched their products and services. Other innovative tools are being developed and evaluated for analyses of the chemical composition of indoor air, studies of stability of inks used for labels in natural history collections and volatile degradation compounds and their role in long-term preservation and identification of heritage materials. The cooperation of WG3 on harmonisation of methods and storage and health with CEN TC346 'WG4-Environment' is getting fruitful. Recently 2 prEN standards have been adopted to conclude: on measuring the air and surface temperature and on limitations of T and RH. And items on specification for light and lighting for exhibitions of art and artworks are under construction. Serious interest is shown by nonCOST countries as USA and Jordan. One important working item is the description of environmental conditions for storage and exhibition, as many materials do behave different and is being continued for at least another year. The impact of ENVIART network will be shown by means discussing case studies. A final conference will be organized in Dublin, 8-9 November 2010.

3 How COST D42 is organized

COST Action D42 was established on June 26, 2006. Within this action there 3 working groups are active. WG 1 on Preservation (with task group 1 'degradation and stabilization' and task group 2 'Prevention'), WG 2: Analysis (with task group 1 'materials' and task group 2 'environment') and WG 3: Guidelines (with task group 1 'methods' and task group 2 'storage and health'). Members of the Management committee of COST D42 can be found at the official COST website: www.cost.esf.org.

The structure of the full network, where at present 26 countries belong to, is presented in Figure 1.

COST D42 Structure & Focus

WG-1 Preservation		WG-2 Analyses		WG-3 Guidelines	
TG1: Degradation & Stabilisation		TG1: Materials		TG 1: methods	
TG2: Prevention		TG2: Environment		TG 2: storage & health	
Focus 1.1: • Effects air pollution on degradation • Strategies for stabilisation • Field and lab studies	**Focus 1.2:** • Pollutants and artefact • (Chemical) air purification • Development new strategies & Innovative methods	**Focus 2.1:** • Analyses object • Analyses environment • Non-destructive tools • Building materials	**Focus 2.2:** • Assessment VOC • Endogenous and exogenous emissions • Particulate matter • Sampling	**Focus 3.1:** • Development new standards • Assessment (and) • Evaluation current methods and standards	**Focus 3.2:** • Healthy storage guidelines • Handling •Exhibition

Common focus:

• Fundamental Research, Dissemination and Education

Figure 1. Cost D42 structure

4 Acknowledgement

The European Commission, the European science foundation and COST office are acknowledged for making this network possible. All D42 members are acknowledged for their contribution.