

## **Guidelines for case studies developed for project “Support Actions to create New RDI partnerships in trans-border area in order to bring together Business and Research for accessing European Funds - SANDI”**

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**Abstract:** *The project № MIS ETC 211: 2 (3i) -3.1-13 “Support Actions to create New RDI partnerships in trans-border area in order to bring together Business and Research for accessing European Funds SANDI” is financed by the Cross Border Cooperation Program Romania – Bulgaria 2007 – 2013 program. Three guidelines for case studies – for air quality, screw compressor testing and noise are developed by the project working team from Ruse University department Thermo technique, Hydraulics and Ecology*





**Key words:** *guidelines, air quality, screw compressors, noise*

### **INTRODUCTION**

Project № MIS ETC 211: 2 (3i) -3.1-13 “Support Actions to create New RDI partnerships in trans-border area in order to bring together Business and Research for accessing European Funds SANDI” is financed by the Cross Border Cooperation Program Romania – Bulgaria 2007 – 2013 program. LEAD PARTNER of the project is National Research & Development Institute for Gas Turbines COMOTI Bucharest, Romania and partner 2 of the project is Ruse University – department Thermo technique, Hydraulics and Ecology. According to the project planned activities three guidelines have to be developed and published by the Ruse University project team. This work will be briefly described here

### **GUIDELINES**

Guidelines could be explained as a set of instructions or procedures which elaborate in detail the steps to be followed in the execution of a particular thing or process. When first starting to write a guideline, a careful understanding and delimitation of the following issues are to be made:

<b>Who</b> will be using the guidelines		designed to help an student of anyone else who is interested in performing a case study
<b>What</b> they will gain from using them		learn how should a case study be performed, the aim and the structure of such a work
<b>Where &amp; how</b> it will be accessed		at Angel Kanchev University of Ruse and the <a href="http://www.cbc-partners.ro">http://www.cbc-partners.ro</a>
<b>Why</b> the guidelines are being produced		to offer support and guidance for a well focused work

We developed three guidelines for case studies - for air quality, screw compressor testing and noise.

## **GUIDELINE AIR QUALITY ASSESSMENT BASED ON ROAD TRAFFIC POLLUTANTS DISPERSION MODELLING**

*(editor Victoria TELEABA – COMOTI institute ROMANIA)*

The purpose of this Guide is to provide minimum instructions for carrying out atmospheric dispersion modeling.

It treats pollution sources (especially mobile sources - road traffic) and some available models for air quality assessment through dispersion modeling.

Where air quality impact assessments are required as part of a planning application, guidance is often sought by the applicant as how best to undertake these to the satisfaction of the local authority

Once an air quality assessment being completed, the local authority will make a judgement on whether the proposed development is likely to significantly affect air quality or if it is located in an area of poor air quality.

The Guide contains information on many aspects of modeling, including: the main types of model available and when to use them, the nature of input data required, and how to get the most accurate results for the level of assessment required.

It can help practitioners to determine:

- which model is most appropriate for the particular circumstances
- what data to put into the model (including emissions data and meteorological data)
- how to run a model effectively
- how to understand the accuracy of modelling results.

The Guide mainly covers the use of dispersion models to assess the effects of pollutants discharged from mobile (single or multiple points) sources - road traffic.

### **CONTENTS**

1. Air Pollution
2. Pollutants and Pollution Sources
3. Transport and Dispersion of Air Pollutants
4. Dispersion Modeling
5. Which Dispersion Model To Use
6. Roadway emissions modeling
7. Meteorology - a critical input
8. Main Steps in modelling – Documentation:
9. Conclusions
10. Bibliography accessed

## **GUIDELINE SCREW COMPRESSORS TESTING**

*(Editor Marian Nitulescu – COMOTI institute ROMANIA)*

Rotary screw compressors are widely used today in industrial refrigeration because of its inherent efficiency, safety, and flexibility.

The conditions in the refrigeration industry are changing and screw compressors are also changing to meet customer's demands.

Modern machine tools and automated inspection equipment are making it possible to hold tighter tolerances in day to day manufacturing environments. This improves compressor performance and consistency from one compressor to the next.

The testing of the screw compressors is very important activity for checking of their condition and work parameters. Therefore the improving of the compressor testing methods is one of the ways for improving of the compressors

**CONTENTS**

1. Principle of operation and classification of the compressors
2. Basic parameters of the compression process. Nature of the compression
3. Screw compressors
  - 3.1. Construction
  - 3.2. Fundamentals of operation
  - 3.3. Volume Ratio
  - 3.4. Capacity Control
4. Methods for testing of screw compressors
  - 4.1. Testing of pressure distribution in twin screw compressors for multiphase duties
  - 4.2. Testing of screw refrigeration compressors under superfeed conditions
  - 4.3 Testing of gas screw compressors ( for natural gas or other types of gas)
5. Conclusion
6. Bibliography

**A PRACTICAL GUIDELINE FOR CONDUCTING A NOISE CASE STUDY**

*(Editor Luminita DRAGASANU – COMOTI institute ROMANIA)*

A noise guideline is intended, as far as possible, to provide a consistent and objective approach which interested people will follow when assessing whether development proposals meet the environmental principles and objectives or other research issue. The present paper is intended as a practical guide and is will not be a legal interpretation of the law.

**CONTENTS**

1. Introduction
2. Noise pollution
  - 2.1. What is noise pollution
  - 2.2. Industrial noise
  - 2.3. Airport/aircraft noise
  - 2.4. Residential noise
3. Noise regulations
4. Steps for a noise case study development
5. Conclusion
6. References

**CONCLUSION**

The developed three guidelines are the good base for providing case studies also planned to be made in the frame of the project № MIS ETC 211: 2 (3i) -3.1-13“Support Actions to create New RDI partnerships in trans-border area in order to bring together Business and Research for accessing European Funds SANDI”

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