DANISH SAFETY TECHNOLOGY AUTHORITY

Common Nordic Project – Surveillance Activity 2012
Evaluation report for portable gas Space Heaters with 230 V electrical connection.

The report is written by the Danish Safety Technology Authority (SIK) in cooperation with the Norwegian Directorate for Civil Protection and Emergency Planning(DSB) in Norway, Finnish Safety and Chemicals Agency (Tukes) in Finland, Swedish Civil Contingencies Agency(MSB) and the National Electrical Safety Board in Sweden.

Executive summary

In a Nordic authority cooperation a common market surveillance has been carried out by SAMGAS WG1 on portable gas space heaters with 230 V electrical connection.
The background to this action was, that the combination of gas and electricity in the same product has placed the type of product in a higher group of risk, than the earlier known gas space heaters without electrical connection.

The participants of the working group come from the Danish Safety Technology Authority (SIK) in Denmark, the Norwegian Directorate for Civil Protection and Emergency Planning (DSB) in Norway, Finnish Safety and Chemicals Agency (Tukes) in Finland, Swedish Civil Contingencies Agency (MSB) and the National Electrical Safety Board in Sweden.

The purpose of the action was to provide an overview and to make safety on the market by localising all portable gas space heaters with electrical connection and asses these for conformity according to the applicable requirements in European standards.
Dangerous, non-conforming products must be removed from the market.
The heaters were tested by accredited test laboratories DBI/DK regarding gas and Intertek (SEMKO)/SE regarding electricity.

The working group has searched the internet and carried out market surveillance at selected retail places and compared information about types in the Nordic countries.
In all 17 heaters were found on the Nordic market and all had defects or remarks. Of these 12 were found on the Danish market and partly on the other Nordic markets.
Out of the 12 Danish heaters, 3 were recalled from the consumers (danger of direct contact of 230 V and more other serious safety issues.) [1]
4 other heaters were withdrawn from the importers own stocks and retail. The products did not comply with the European standards for safety, and they had so many defects, that SIK stopped further sales on the Danish market.
The last 5 heaters had defects such as missing safety instructions, wrong marking etc. The importers were told to rectify the defects before the next import.

Out of the 5 heaters, which were only found in Norway, Finland and Sweden, 3 heaters are also expected to be recalled from the consumers. The 2 (1 in Norway and 1 in Sweden) with danger of direct contact with 230 V and more other serious safety issues and the last one where the CO emission corresponds to 3000-5000 ppm, and the maximum permissible value is 1000 ppm (this heater was only found in Sweden).
2 heaters are expected to be withdrawn from the importers own stocks and retail.

Missing design control and documentation
In generally 2-3 times as many serious electrical defects have been found compared to gas. It should be seen in the light of the fact that under the Gas Appliances Directive (GAD) there is still requirements on control by a notified body to achieve CE marking whereas the requirement for control by a notified body to achieve CE marking under the Low Voltage Directive (LVD) was removed in the 90s. Since then it has been the manufactures themselves who are responsible for their own design control, and they just have to make an EC declaration of conformity to type.

[1] by SIK's injunction to the importer of revocation to one of the 3 gas space heaters, a consumer contacted the Danish Safety Technology Authority that he had suffered a massive electric shock - fortunately without serious injury.

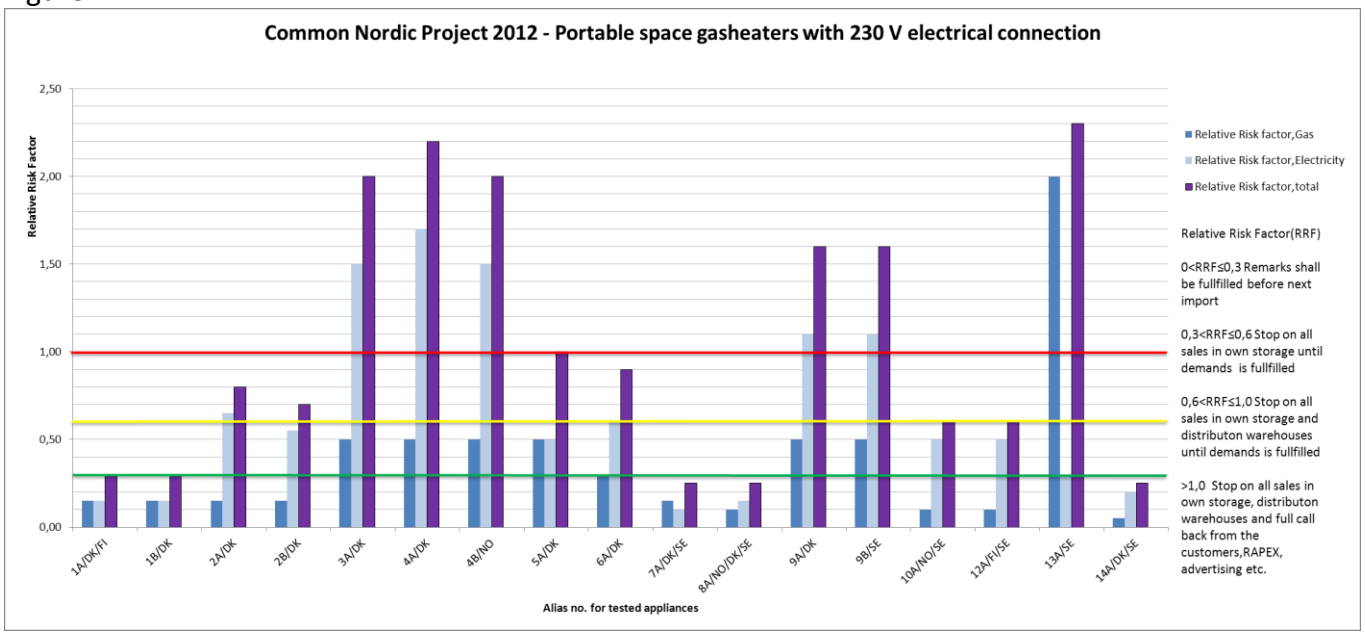
These results and market surveillance at other electronic devices show, that this has meant less safety. And in this common Nordic project 6 out of 17 heaters had to be recalled from the consumers – far too many.

In this project the group had difficulties to get the necessary documentation from manufactures/importers especially Declarations of Conformity according to LVD. Unfortunately, the documentation we have received has been inadequate in more cases. In a single case with a Declaration of Conformity provided, however the product's construction was so dangerous that it was recalled from the consumer. In the future we will address this problem under the EU auspices.

Effective surveillance methods

The methods that have been used for market surveillance in the Nordic cooperation have been very effective not least in the light of the fact that the experiences and exchanges that have taken place have been good. The below figure 1 shows the inspected heaters as function of the relative risk factor which is a subjective expression based on the safety investigations from the accredited test laboratories and the risk based assessments carried out by SAMGAS WG1.

Figure 1



Background

The Danish Safety Technology Authority (SIK) had in connection with market surveillance in 2010 found serious defects at an portable infrared gas space heater with 230 V electrical heating element. The heater was manufactured in Turkey. The Danish Safety Technology Authority had a meeting with the importer and told about the defects which the Danish Safety Technology Authority's own laboratory had found. The product's gas technical properties were revised in accordance with EN 449:2001+A1:2007:

1) The inlet connection of the regulator, was not approved for Danish installations following Danish Standard - DS 24, as demanded according to the Danish Gas Regulations, section B-5,paragraph 2.1

2) The gas hose was not DG-marked – approved gas hose for Danish installations(made of an art of plastic) as required in accordance with the Gas Regulations Section B-5, paragraph. 3.4.2 and was very difficult to apply properly.

3) In user - and installation instructions were expressed, that the customer had to mount the gas hose and regulator themselves. It is not allowed in Denmark

4) When used in fx an allotment, which can arise freezing temperatures inside, cracked hose to the extreme isolation by "straightening" / attaching the hose after exposure to cold!

For the product's electrical endpoints, we had chosen to EN 60335-1 (IEC 335-1) - Electric appliances for household use and its additional basis for SIKs assessment of the product's electrical safety. The manufacturer(importer) informed, that there was no declaration of conformity in accordance with LVD, although it was described in the manual.

5) The product was not supplied with a label stating the product's power, voltage and frequency.

6) It was considered, that EN / IEC 60335-1, § 27 "Provision for earthing" was not met:
   - Accessible metal parts that could become live in the event of an insulation fault was not seen to be firmly and reliably connected to a ground terminal.
   Connection between earthing terminal and earthed metal parts was estimated to have a low resistance, when the connection was made through a painted surface.

7) It was also assessed to EN / IEC 60335-1, § 26 "Terminals for external conductors" nor were met:
   Connecting to external conductors were not made by means of screws or nuts and terminals were not secured.

8) It was considered that EN / IEC 60335-1, § 8 "Protection against access to live parts" nor were met:
   There could be affected parts that are protected with basic insulation without removing the removable parts using the tool.

9) It was estimated to EN / IEC 60335-1, § 25 "Supply connecting and external flexible cords" was not met, with relief device could relieve the input cord.

The Danish Safety Technology Authority assessed on basis of a risk analysis that a significant risk of serious danger was present referring to the described items 2), 3), 4), 6), 7), 8) and 9).

The importer did not want further tests at accredited test laboratories and preferred a voluntary recall from the consumers. The case was reported to RAPEX.

The Nordic project

After another screening of the market the Danish Safety Technology Authority had decided in 2011 to carry out a larger market surveillance project . The background was, assessed on the basis of an accident in 2010, that the combination of gas and electricity in the same product placed the product in a higher group of risk, than the earlier known gas Space Heaters without electrical connection.

It had been discussed earlier in SAMGAS that the group was interested in some common projects, where synergies could be an advantage. Cooperation between the Nordic countries Norway, Finland, Sweden and Denmark was arranged.
The participants of the working group come from the Danish Safety Technology Authority (SIK) in Denmark, the Norwegian Directorate for Civil Protection and Emergency Planning (DSB) in Norway, Finnish Safety and Chemicals Agency (Tukes) in Finland, Swedish Civil Contingencies Agency(MSB) and the National Electrical Safety Board in Sweden.

3 meetings have been held: 3 February 2012, 13 and 14 June 2012 and an evaluation meeting 2 and 3 October 2012. A follow up meeting is planned at the beginning of 2013.

Market Surveillance

Between the first and the previous meeting the sampled heaters have been tested by the accredited test laboratories DBI/DK regarding gas and Intertek (SEMKO)/SE regarding electricity, respectively.

In Denmark market surveillance has been carried out 34 places in retail and the internet has been used for product searching too.
All products that could be found in the mentioned combination of gas and electricity have been sampled. 5 December 2012 SIK found the 18th heater, which is new on the Danish market and therefore it is not considered in this report.

Norway had carried out market surveillance 14 places in retail and used internet searching. Finland and Sweden had also carried out market surveillance and internet searching.

Investigations

The investigations were conducted as "package 1" consisting of 8 units before the summer 2012, partly as "package 2" which consisted of 9 units after summer 2012. This must be viewed in light of the fact that, firstly, it is not possible to deal with all the test results at the same time and also for economic reasons.

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Merja Rajamaki/TUKES, Finland
Mikko Ojala/TUKES, Finland
Seppo Huttunen/TUKES, Finland
Harri Roudasmaa/TUKES, Finland
Marianne Runhage/MSB, Sweden
Anne Marie Lindgren/MSB, Sweden
Margareta Willbergh/Elsäkerhetsverket, Sweden
Hardy Balle/SIK, Denmark
Alex Jensen/SIK, Denmark
Ole Bram/SIK, Denmark
Bjarne Holm/SIK, Denmark

DBI/DK tested regarding gas according to the Gas Appliances Directive (GAD) 2009/142/EC and standard EN 449:201 + A1:2007.
Regarding electricity Intertek(SEMKO) has tested the heaters according to the Low Voltage Directive (LVD) 2006/95/EC and the European standards EN/IEC 60 335-1 with amendment EN/IEC 60 335-2-30 and EN/IEC 60 335-2-102.
All the gas Space Heaters have only been tested on selected safety issues in accordance with the standards – a complete test might have shown more defects.

The following heaters were tested with different alias numbers, partly for an easier case handling partly to name design construction and a possible clone. That is the number in “1A” means the construction of the heater and the letter is brand or model. Thus 1A og 1B are exactly the same construction (manufacturer) but with 2 different labels (models).
Furthermore at figure 1 the countries have been added in which the heater has been found.

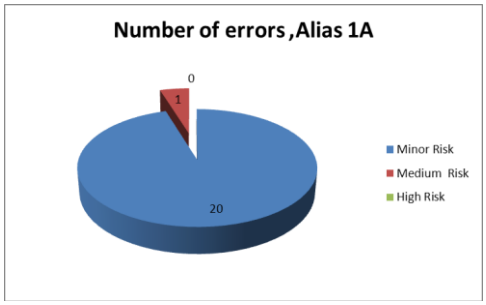
Alias 1A	NOR-VARM, model 80 346-(LD-168GF)
Alias 1B	TopCraft, model 89 017
Alias 2A	WATEX, model 712000
Alias 2B	Camp and Nature
Alias 3A	WeCamp, model 404010
Alias 4A	EPOL 6200, model EPOL 6200/SN08-DQ
Alias 4B	Gass og Elektrisk Ovn, model SN08-DQ
Alias 5A	CampForever, model LD-168
Alias 6A	Harboe Trading, modelLI238QF/002190
Alias 7A	Bluegas, model BG 64
Alias 8A	Zipro, model GH1062RF
Alias 9A	Harboe Trading, model JK2888F
Alias 9B	Primagaz, model 464960
Alias 10A	FUTUR, model LI-238QH
Alias 12A	SW Exergon, model 128900(LI238H)
Alias 13A	AYGAZ, model C43FR
Alias 14A	CAMPINGGAZ, model IR5000Turbo

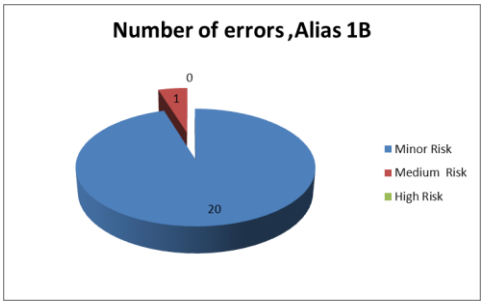
Risk analysis

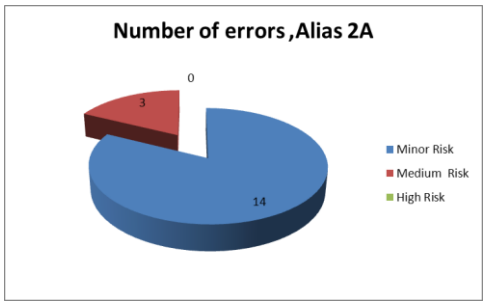
The level of claims against the importer/manufacturer has been made by SAMGAS WG1 on basis of test reports from DBI and Intertek and physical evaluation of the gas Space Heaters. Furthermore, WG1 has based the safety evaluations on the RAPEX risk assessment tool.

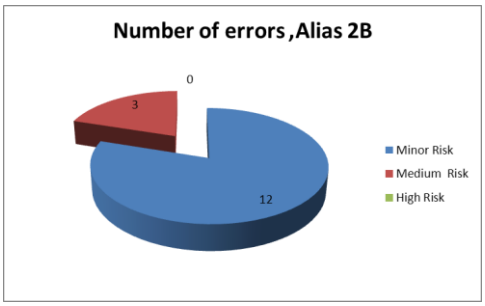
Of the 17 heaters on the Nordic market, all had defects and remarks. Of these 12 heaters could be found on the Danish market and partly on the other Nordic markets too.

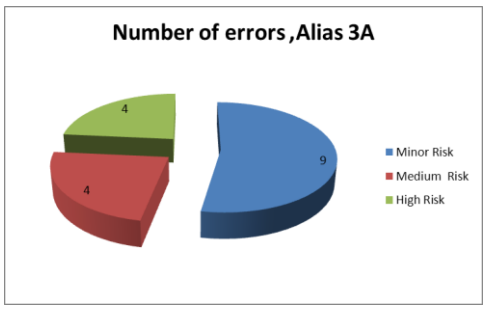
The figures show the allocation of the defects specific at the single heaters compared to risk levels.

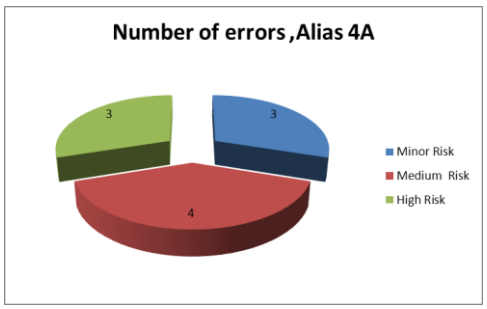


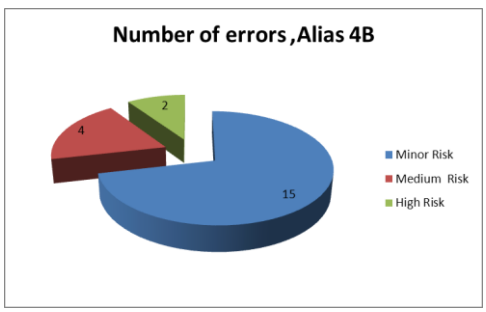


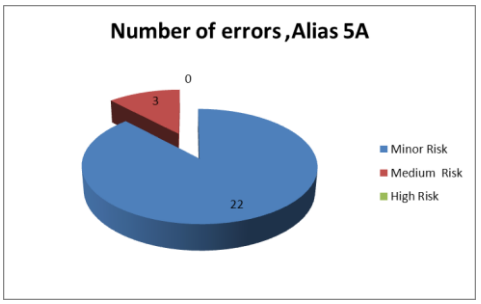


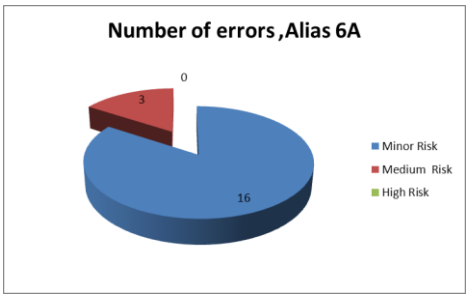








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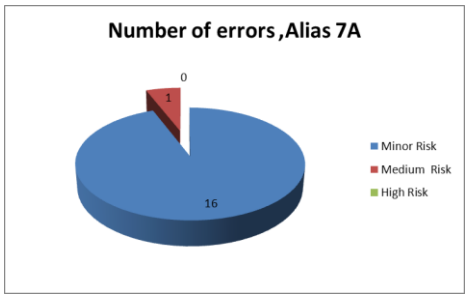
16
Minor Risk
Medium Risk
High Risk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1
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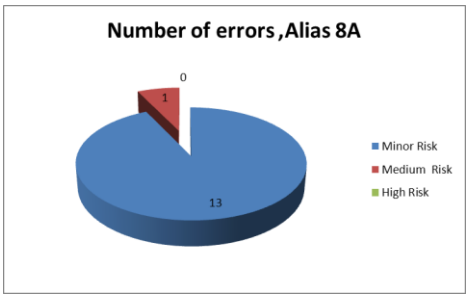
Minor Risk
Medium Risk
High Risk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1
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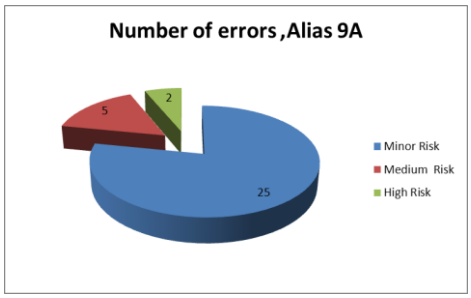
Minor Risk
Medium Risk
High Risk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2
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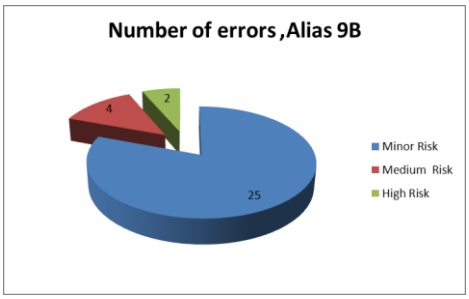
Minor Risk
Medium Risk
High Risk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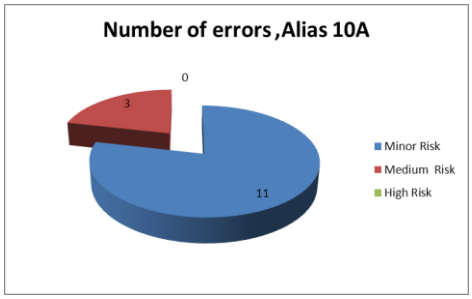
4
2
25
Minor Risk
Medium Risk
High Risk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3
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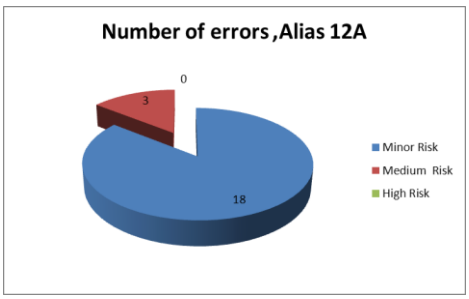
Minor Risk
Medium Risk
High Risk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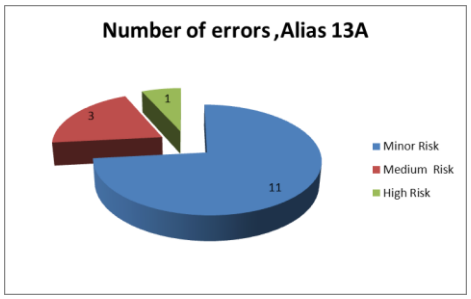
Minor Risk
Medium Risk
High Risk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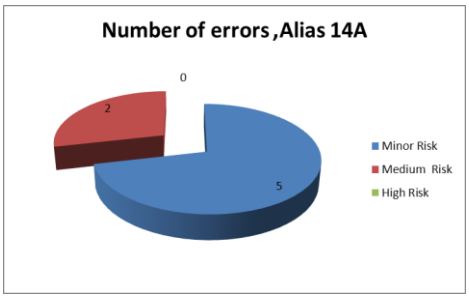
3
11
Minor Risk
Medium Risk
High Risk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0
2
5
Minor Risk
Medium Risk
High Risk

Conclusion

In generally 2-3 times as many serious electrical defects have been found compared to gas. It should be seen in the light of the fact that under the Gas Appliances Directive (GAD) there is still requirements on control by a notified body to achieve CE marking whereas the requirement for control by a notified body to achieve CE marking under the Low Voltage Directive (LVD) was removed in the 90s. Since then it has been the manufactures themselves who are responsible for their own design control, and they just have to make an EC declaration of conformity to type.

These results and market surveillance at other electronic devices show that this has meant less safety. And in this common Nordic project 6 out of 17 heaters had to be recalled from the consumers – far too many.

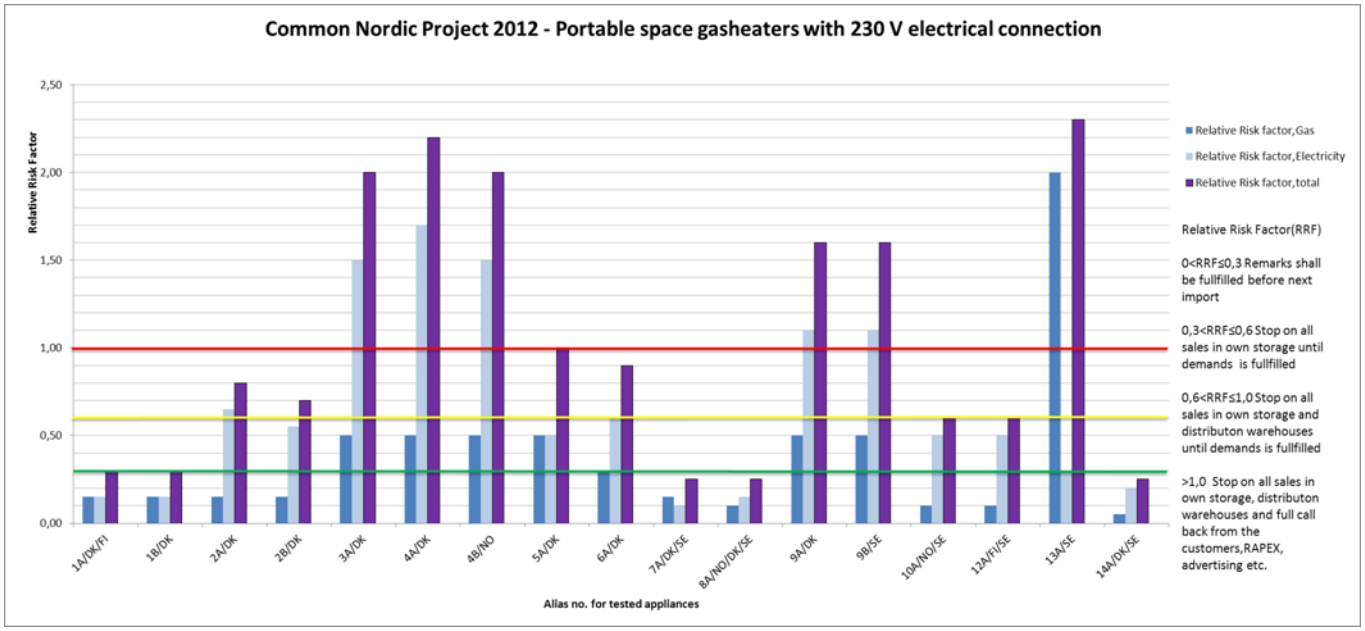
Learning points

The methods, that have been used for market surveillance in the Nordic cooperation, have been very effective not least in the light of the fact that the experiences and exchanges that have taken place have been good. As mentioned earlier it is clear that a concentrated effort where the Nordic countries have joined this project and are able to control tests at the notified bodies provides better uniformity in the interpretation and process of the results obtained.

Corrective actions

The results obtained should be addressed at a higher level e.g. LDV ADCO, GADAC, PROSAFE and the European Commission.

European importers should be able to trust CE Certificates according to GAD and Declarations of Conformity according to LVD.



for SAMGAS WG1

Sign.
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