Rockwool Firesafe Insulation
(Guangzhou) Co. Ltd.

www.rockwoolasia.com

敬启者：

最新发布的法规使得建筑行业不得不建造防火等级更高的房屋。对此，中国塑料加工工业协会 EPS 专委会（CPPIAEPS）发布了一系列声明，但其中的一些声明并不符合事实。作为中国建筑节能行业的一份子，我们一直致力于在改善建筑节能的同时提供防火安全。为了确保有关专家能够得到真实的结论，我们提供以下的相关信息：

中国塑料加工工业协会 EPS 专委会结论：导致近期几场火灾的材料大多数是挤塑板（XPS）或聚氨酯板（PU），并且大多数为 B3 级产品，而非 B1 级。施工现场管理不善、缺少监管导致使用不合规格的保温材料。除了避免在保温材料附近进行焊接作业之外，行业自律、监管部门严格要求、施工现场加强管理等措施可以解决这些问题。

回应：泡沫保温制品的可燃性会放大人为失误造成的后果，使用不合格的材料这种做法很常见，但却后患无穷，甚至违法。至关重要的是，我们应该认识到建筑及建筑材料是可以弥补现实生活和工作中的人为失误的，这种失误包括在施工期间（使用不合格材料、工地施焊、明火、吸烟）发生的，也包括在入住后（厨房炉火、外墙明火）发生的。提高监管部门的执行力度、加强施工现场管理确实很有必要，但这并不能避免人为失误的发生。由于同行业之间存在着各种利益之争，因此行业自律这种方案也不可行。

中国塑料加工工业协会 EPS 专委会结论：仅考虑保温材料的燃烧性能而忽视施工现场管理问题，即使是 A 级不燃材料也可能对人身及财产安全构成极大威胁。

回应：施工现场问题不可忽略。按照最高标准为人们建造适合工作和生活的建筑，管理部门负有至关重要的责任。而 A 级不燃的岩棉产品对人身、健康以及财产安全不会构成任何威胁。特别是在管理无法达到最高标准的情况下，如有火灾发生，A 级不燃材料能提供一定的安全保障，而可燃材料做不到。

中国塑料加工工业协会 EPS 专委会结论：岩棉可满足防火要求，但若达到好的保温性能就只能使用低密度、低抗拉强度、低吸水率、低耐久性且低绝热性能的材料。当前的国内市场上，还没有成熟的外墙外保温系统能够实现 65%的节能要求，同时达到 A 级可燃性。

回应：中国制造的优质岩棉完全可以满足抗拉强度、吸水率、耐久性与保温性能方面的所有要求——甚至具有较高密度。在大部分应用中，岩棉的保温性能可与聚苯乙烯板相媲美，甚至在一些应用中超过聚苯乙烯板的保温性能。

洛科威防火保温材料
（广州）有限公司

中国广东省广州市天河区黄埔大道西
76号富力盈隆广场2515室 (510623)

电话 (+86) 20 3839 3636
传真 (+86) 20 3839 3637

中国塑料加工工业协会 EPS 专委会结论：由于技术水平与生产条件的限制，岩棉不适合用于外墙外保温复合系统。在欧盟国家，岩棉仅用于少数有特殊用途的项目中，如在德国，岩棉仅用于 5.6%的外墙外保温复合系统项目。

回应：岩棉是极好的外墙外保温复合系统保温产品，不仅如此，由于其不燃性能，岩棉还是一种建筑防火安全解决方案，被视为高层建筑的首选材料与解决方案，这些都充分反映在 EN13500 与 ETAG004 标准的规定中。

泡沫保温制品的可燃性会对人身及财产造成很大风险与损害，因而欧美不允许在高层建筑中使用这种材料。在德国，岩棉在所有外墙外保温复合系统应用中的市场份额为 5.6%，但这一统计结果包括了欧洲最常见的建筑：低层单户住宅——与中国盛行的高层建筑结构没有可比性。而对于 22 米以上的高层建筑，岩棉在德国外墙外保温复合系统中的市场份额为 100%。

不应将岩棉与渣棉混淆，渣棉是用不同的原材料制造的，其性能也与岩棉大不相同。

中国塑料加工工业协会 EPS 专委会结论：没有足够的适合用于外墙外保温复合系统的岩棉产能满足中国建筑节能的要求。

回应：不错，目前没有足够的产能满足所有的要求。然而，这个行业正大量投资扩大产能，供需差距会不断缩小。而且，缺乏产能也不应成为放弃未来最佳方案的理由。

中国塑料加工工业协会 EPS 专委会结论：保温材料采用岩棉每平方米成本要比用聚苯乙烯板高许多，如果按照 65 号文实施，每平方米楼面空间要多花 20 元（注：保温平米数是楼面空间平米数的一半）

回应：这种计算表明成本并不能成为阻碍岩棉成为优选保温材料的理由。就拿建筑面积 100 平方米的楼房来说，整个楼房使用岩棉外墙保温系统比起使用 EPS 系统，增加的成本仅为 1000 元[1]。与楼房的售价相比，增加的成本微乎其微。仅增加 1000 元施工成本几近于无，尤其是增加的这一点成本能够使建筑安全防火，使建筑和居民的安全得到切实保护。

[1]按 100 平米建筑面积的楼房约有 50 平米数的外墙保温面积计算，乘以每平方米岩棉外墙系统比 EPS 外墙系统成本高出的 20 元，使用岩棉系统所增加的费用约为 1000 元。

洛科威防火保温材料
（广州）有限公司

中国广东省广州市天河区黄埔大道西
76号富力盈隆广场2515室 (510623)

电话 (+86) 20 3839 3636
传真 (+86) 20 3839 3637

中国塑料加工工业协会 EPS 专委会结论：岩棉是致癌物，会对人体健康造成严重损害。长时间暴露在岩棉尘埃中会引起支气管炎、肺气肿以及接触性皮炎。一些发达国家严格限制岩棉使用。

回应：一些组织（如：世界卫生组织）已经就岩棉纤维是否致癌进行了大量研究，结果清楚表明：岩棉纤维不是致癌物。研究[2]结果认为："绝热玻璃棉、连续玻璃丝、岩棉及渣棉不可归为人类致癌物质（第 3 类）"。我们作为建筑行业的一份子，得知中国塑料加工工业协会 EPS 专委会仅出于自身的利益而提出这种错误的论点，导致建筑工人与客户产生恐惧，我们深感惊讶。岩棉致癌性研究众所周知，并且这些研究报告是公开的。此外，就健康问题而言，我们并不知道有任何"严格的"岩棉应用限制。

中国塑料加工工业协会 EPS 专委会结论：岩棉生产过程会产生大量的废水、气体排放物并消耗大量能源：岩棉生产被定义为高能耗、高污染行业，不符合中国的节能目标。

回应：现代工厂的全部或大部分生产废物是可循环利用的，剩下少量废物经过处理后，排放物也被降到最低。一个单位的岩棉在其使用中所节省的能耗百倍于其生产中的能耗。制造 1 千克岩棉消耗约 20MJ 能量，而制造 1 千克聚苯乙烯板消耗至少 85MJ。制造聚苯乙烯板的原材料基本为石油天然气等矿物燃料，而制造岩棉只需使用非常普通的岩石——玄武岩，其可用储量近乎无限。此外，值得一提的是，为使聚苯乙烯板达 B1 级所使用的阻燃剂 HBCDD[3]是一种 PBT 物质（持久性、生物累积性、毒性物质），欧盟化学总署早前就决定将 HBCDD 列入需要特别关注的物质（SVHC）。从生产到安装再到拆除[4]，岩棉可以被绝对地排除为有害废物。

[2]国际癌症研究机构：国际癌症研究机构专著项目，81 卷，339 页
[3]六溴环十二烷
[4]英国环境署技术指引摘要 MW2-www.environmental-agency.gov.uk

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To whom it may concern,

Due to legislative changes moving the construction industry to safer buildings in terms of fire risks, and as part of the Chinese industry working for improved energy efficiency in buildings; we would like to share some important fact-based information to all relevant parties in response to a number of statements made, that in some cases do not represent the reality.

Statement: The materials used when fires occurred were mostly XPS or PU and it was mostly due to use of B3 class products, not B1. There is poor management on the construction site and the lack of supervision and proper on-site management goes hand-in-hand with the use of substandard insulation material. More self-discipline by the industry, better performance by the supervision department and strengthening of the construction site management will solve these issues, in addition to avoiding welding close to insulation materials

Answer: Combustible foam based insulation products do not leave any room for human error, nor for general practices of using sub-standard materials – even against regulations. It is of vital importance to realize that a building and the materials used should compensate for human errors made in real-life, both during construction (use of sub-standard material; welding on a building site; open fire; smoking) and after (kitchen fire, rubbish fire outside the facade). It is in-deed necessary to improve the performance of the supervision department and to strengthen the construction site management but this will not take away the possibility of human mistakes. Self-discipline by the industry is not a viable solution as it will have to compete with the self-interest of the same industry

Statement: Only considering the combustion performance of thermal insulation materials and neglecting construction site management problems, even Class A non-combustible materials may also be a great threat to the life and property safety

Answer: The construction site problems should not be neglected and it is of utmost importance that the management responsible for constructing the buildings where people live and work are of the highest standard. However, class A non-combustible stone wool products are no threat to life, to health nor to property safety in any way. And especially in case where management is not of the highest standard, class A non-combustible materials

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传真 (+86) 20 3839 3637

gives some margin of safety in case of fires whereas combustible materials are not as forgiving.

Statement: Stone wool can meet the fire protection requirements but if you want to have high thermal performance you'll have low density, low tensile strength, water absorption, poor durability and low thermal insulation performance. Considering the current domestic conditions there is no such mature external thermal insulation system which can meet the 65% energy conservation requirement and whose combustibility can reach A-Class.

Answer: The high quality stone wool produced in China meets all requirements in terms of tensile strength, water absorption, durability and thermal insulation performance – even with higher density. For most applications the thermal insulation performance of stone wool is comparable to EPS and in some applications even better than EPS.

Statement: Stone wool is not suitable for ETICS due to restrictions in technical level and production conditions. It is only used in a few projects for special purpose in EU countries like Germany where stone wool is used in only 5.6% of ETICS projects

Answer: Stone wool is an excellent thermal insulation product for ETICS but even more so, as a fire safe solution for buildings due to its non-combustibility and it is seen as the preferred material and solution for high-rise construction – which is well reflected in Eg. EN13500 and the ETAG004 requirements.

In both Europe and the USA foam based insulation products are not allowed to be used in high rise buildings due to its combustibility, as it would cause too much risk and harm for people and property. In Germany, the market share of stone wool in all ETICS applications is 5.6% but these include the most common buildings: low-rise one family buildings – not comparable to the high-rise application prevalent in China. For high-rise buildings higher than 22 meters the market share for stone wool in ETICS in Germany is 100%.

Stone wool should not be confused with slag wool which is produced using different raw material and which has very different properties compared to stone wool.

Statement: There is not enough stone wool production capacity for ETICS to satisfy the Chinese demand of construction energy conservation

Answer: This is correct; currently there is not enough capacity to fulfil all demand. The industry is however heavily in-vesting in extending the capacity which will close this gap.

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And lack of capacity in itself should not cause the optimal solution to be abandoned for the future

Statement: The cost of insulating with stone wool per sqm is much higher than with similar EPS thermal insulation and adapting to "#65" will cost 20 RMB more per square meter of floor space (note: square meters needed for insulation is half the square meters of floor space)

Answer: This calculation shows that extra costs are not the reasons for not using stone wool as the preferred insulation material. For a typical 100 square meter apartment the added cost for using a fire safe insulation material would only be 1.000RMB2 for the entire apartment. Compared with the sales price for apartments this is very little. Adding only 1.000RMB in construction cost is very marginal especially in order to make an apartment fire safe and to protect it and its inhabitants

Statement: Stone wool causes severe harm for human health, being carcinogenic. Exposure to stone wool dust for a long time will cause bronchitis, emphysema and dermatitis venenata. Some developed countries apply stringent restriction to stone wool applications

Answer: Extensive research has been done (Eg. by the World Health Organisation) to establish if stone wool fibres are carcinogenic and the result is clear: they are not. The conclusion of such research3: "Insulation glass wool, continues glass filament, rock (stone) wool and slag wool are ***not*** *classifiable as to their carcinogenicity to humans (Group 3)".* As an industry we're shocked and appalled that CPPIAEPS is using such false arguments to breed fear into construction workers and customers solely for their own gain. This research is well known and easily accessible. Furthermore we are not aware of any (stringent) restrictions to stone wool applications in regards to health issues.

Statement: Stone wool production produces a large amount of waste water and gas emissions and it consumes a great deal of energy: stone wool production is defined as an industry of high- energy consumption and pollution which doesn't suit the goals of China for energy reduction

Answer: Most of the production waste of the modern facilities – if not all – is recycled, leaving little waste to be dis-posed of and emissions are reduced to the minimum. The energy used to produce one unit of stone wool is saved more than 100 times by that unit in energy savings. It costs around 20 MJ to produce 1 kilogram of stone wool

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传真 (+86) 20 3839 3637

while it takes at least 85 MJ to produce 1 kilogram of EPS. The raw materials for EPS production are based on fossil fuels like oil and natural gas while for stone wool a very common rock type named basalt is used with almost infinite accessible reserves. Further it is worth mentioning that the fire retardant used in EPS to reach class B1, HBCDD4, is a PBT-substance (persistent, bio accumulative toxic substance) and the European Chemicals Agency decided to include HBCDD in the Substances of Very High Concern list (SVHC). Mineral wool is categorically excluded as hazardous waste, either from production operations or from construction and demolition.

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传真 (+86) 20 3839 3637