< 특별기고문 >

The Korean Disinfectant Humidifier Tragedy-A Legal Analysis

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Ⅰ. Preamble

Whilst I have been asked to consider the potential to take a claim(s) in the United Kingdom, I will focus on the issue of disinfectant humidifiers as it has occurred in Korea. This is because the substantive legal issues in any claim taken in the High Court of London, will be decided under Korean Law, and not the law of the UK. UK law will only be applicable to procedural matters. Further, a detailed account of the issue is important when highlighting the issue in the media and social networks. It could also be used to make a complaint to the United Nations Human Rights Committee or the under the OECD mechanism if need be.

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Ⅱ. The Issue of Disinfectant Humidifiers

The closed dry atmosphere in Korea in the winter season, has led to the use of both humidifiers and disinfectant humidifiers, since 1994, athough its use began to rapidly increase only in the early 2000s. Korea is believed to be the only country in the world in which humidifier water was added to disinfectant to create a disinfectant humidifier. One study indicates that over 18% of Korea's population (around 4m people) may have been using disinfectant humidifier at any one time[1]. Some sources state that over 8m people have cumulatively used disinfectant humidifiers since 1994[2].

There appears to be anecdotal evidence of the prevalence of unspecified respiratory problems amongst pregnant women and infants since the early 2000's. In 2011, there were unconfirmed reports of viral lung disease amongst pregnant women by the Korean Centre for Disease Control (KCDC)[3].

Following epidemiological tests based on animal inhalation experiments conducted by the Korea Institute of Toxicology, the Korean Ministry of Health and Welfare and the Korean Center for Disease Control and Prevention (KCDCP) issued an order for the withdrawal of six disinfectant humidifier products from the market on the 11th November 2011[4]. The criteria for an order for withdrawal under law are[5] :

a) When a product risk is confirmed;
b) When a recommendation for product withdrawal is not followed;
c) When a risk of causing harm to life and body is recognized (death, injury or disease requiring four weeks and more weeks of treatment).

The animal experiments found that, *inter alia* in relation to two of the products, Oxy Ssakssak New Gapseupgi Dangbun (Oxy) and Cefu Gaseupgi Salgyunje

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1) http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3274807/

2) see Government wihite paper on investigations (http://www.anroev.org/wp-content/uploads/2015/05/20150519-White-Paper-of-1st-Government-investigation-2nd-investigation-data-summarsed.pdf)

3) http://kosis.kr/abroad/abroad_01List.jsp?parentId=A

4) http://english.mw.go.kr/front_eng/sg/ssg0111vw.jsp?PAR_MENU_ID=1001&MENU_ID=100111&page=11&CONT_SEQ=260454

5) Article 11, Para 1, of the Basic Laws of Safety.

(Cefu), abnormal biopsy results indicated that the products were toxic and correspondingly satisfied at least one of the above criteria. Before withdrawal, these two products comprised more that 80% of the total market for disinfectant humidifiers in Korea[6]. The results were then reviewed by experts who agreed with the conclusions and this then lead to a nationwide investigation by the Government to identify the overall scale and status of the lung damage caused by disinfectant humidifiers.

Subsequent to the Korean Institute of Toxicology Study in 2011, there have been numerous other studies on the subject. A recent article published in May 2015[7], listed at least another six research articles which indicated the correlation between disinfectant humidifier use, and what is now known as humidifier disinfectantassociated lung injury (HDLI), especially amongst infant children and pregnant women, who tended to have the highest disinfectant humidifier use. However, there are apparently nearly 30 research papers on this subject, including one dating back till 2002. In order to further examine the causation of HDLI with disinfectant humidifier use, a Lung Injury Investigation Committee (LIIC) was formed in 2013 to investigate relevant evidence of disinfectant humidifier toxicity and to officially diagnose cases of lung injury caused by disinfectants.

The Committee organized under the Korean Centre for Disease Control (KCDC) of the Ministry of Health, consisted of physicians, toxicologists and environmental researchers. During the review of potential cases of HDLI, previous medical records, as well as new examination results were collected together with environmental assessments, and reviewed according to the diagnostic criteria. In this review process, health assessments covering radiologic, pathologic, clinical areas and environmental assessments on the usage of and exposure to humidifier disinfectants were conducted independently from each other, and later summarized and analyzed to check for its overall validity by epidemiologists. In principle, each separate review was conducted independently by at least 3 professionals who have in-depth knowledge and experience in the relevant fields.

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6) http://www.hazards.org/deadlybusiness/comeclean.htm?utm_content=buffer643dc&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

7) http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4433275/

The causation of the injuries from the use of disinfectant humidifiers, were then classified into four categories of probability, definite, probable, possible and unlikely. There was also a fifth category of classification for those cases in which it was impossible to judge. In March 2014, the Committee confirmed that there were HDLI patients. A second investigation done by the Ministry of Environment in the following year, with the results produced in April 2015, showed more victims of the HDLI. A third investigation to be conducted by the Ministry is planned for next year. From the first two investigations, the Committee found that there were 282 injuries, including 103 fatalities, that were definitely, probably or possibly caused by the use of disinfectant humidifiers[8]. A large number of those injured would have used Oxy and Cefu, and practically all of the victims used more that one disinfectant humidifier product. So how was it possible that such dangerous products were supplied to the Korean population, without there being any highlighting of the health risks of prolonged use, before 2011?

The Order of the 11th November 2011, highlights two chemicals which were used in the six disinfectant humidifier products which were withdrawn from the market. The most common chemical, Polyhexamethyleneguanidine Phosphate (PHGP), was used in four of the disinfectant humidifiers, including Oxy, which was manufactured by the Hanvit Chemical Company Limited[9] (Hanvit), but then blended and supplied by Oxy Reckitt Benckiser Ltd (Korea)[10] (RB Korea). RB Korea is a wholly owned subsidiary of Reckitt Benckiser PLC, (RB PLC), since 2001. Whilst there is no evidence of the testing of these four disinfectant humidifiers on animals before withdrawal, to ascertain the effects of prolonged exposure, there is some indication that the possible health effects of PHGP was known as far back as 2002.

SK Chemicals Ltd, part of the SK Group, a Korean chemical company established in 1969, had been producing PHGP since it patented it in 2000, as a

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8) http://www.anroev.org/wp-content/uploads/2015/05/20150519-White-Paper-of-1st-Government-investigation-2nd-investigation-data-summarsed.pdf

9) http://www.hanvitchem.com/en/

10) https://www.oxy.co.kr/eng/about/ab_history02.asp

microbacterial agent to be added to resins[11]. The Material Safety Data Sheet (MSDS), SKYBIO 1100, dated 2.12.02[12] clearly states the following:

EFFECTS OF OVEREXPOSURE

Based on the available animal toxicity information for a closely related material, it is anticipated that this material will produce severe skin or eye irritation and/or burns and possible irreversible damage upon direct or prolonged contact. Inhalation of mists of this product may be harmful (my emphasis). Repeated or prolonged contact with this material may produce allergic reactions.

It goes onto state:

RESPIRATORY PROTECTION

It is usually safe to not use a dust mask or respirator protection on account of this product. However, if the product is being used in dusty or confined conditions, use of a mask or respirator may be preferred (my emphasis).

The MSDS then provides a liability warning, which clearly states:

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes (my emphasis). In no event shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we have been advised of the possibility of such damages†

In March 2003, the Final Public Report for PHGP under the National industrial Chemicals Notifications and Assessment Scheme (NICNAS) of Australia[13],

11) http://www.google.com/patents/EP1110948A2?cl=en

12) http://www.wwrcsha.com/uploads/product/201009/s07.0041-025-00_sk_1100_msds.pdf

13) http://www.sudmed.ru/index.php?act=Attach&type=post&id=2882

indicates acute oral toxicity indicated by:

Slight body weight loss; piloerection seen in all rats; hunched posture, waddling/unsteady gait, lethargy, respiratory distress (my emphasis), partially closed eyelids, pallid extremities, increased salivation, walking on toes, bluish colour to extremities and prostration.

The Product Data Sheet for PHGP[14] dated 10.3.03 similarly states that inhalation should be avoided.

The above evidence indicates that the SK Chemicals Ltd, the company that initially manufactured and then patented PHGP as a microbacterial agent for resin production in 2000, informed users that it was highly toxic when inhaled and may produce irreversible damage on prolonged use. It further indicated that it may have effects in a confined space and that safety equipment should be worn. The liability warning on the data sheet, whilst broad in its exclusion, states that the user of the product should do their own investigations before determining the suitability of the product for their own purposes. This would presumably include its manufacture and use as a disinfectant in disinfectant humidifiers.

How other companies, including the Hanvit Chemical Company Limited, began producing PHGP, for what purpose they began producing and what they knew about the toxicity of PHGP is unclear. Neither is it is clear, how a chemical which was patented and originally used as a microbacterial agent to be added to resins, ended up being used in disinfectant humidifiers for large-scale use in the Korean market. However, what is tragically clear is that the chemical was eminently unsuitable to be added to water, vapourised, and used for prolonged periods in confined spaces because of its toxic and harmful nature when inhaled.

The Consumer Basic Act, which came into force on the 1st January 2008, requires that the responsible party for a potentially defective product. that may cause damage to persons or property, must inform the at risks persons of such danger. A defective product is defined as a product that lacks the level of safety that would be ordinarily expected by a consumer[15]. The obligation to inform

14) http://www.wwrcsha.com/Uploads/Product/201009/S07.0041-025-00_SK_1100_TDS.pdf

15) Korean Product Liability Act 2002, Article 2(2). In particular see Article 2(2)(b), which is concerned about Defect in Design.

consumers of a product of the risks that it may cause damage to persons or property is an important one. It means that, in the case of PHGP, the information about its toxic nature should have been passed along its supply chain, and the end-user informed about its risks by the supplier.

This appears to have been the opinion of the Korean Free Trade Commission (KFTC), when it found RB Korea guilty of not informing the consumers of Oxy that it contained PHGP, a product that may cause *inter alia* respiratory problems after prolonged use in a confined space. Indeed, it appears that the company not only did not inform the users of the risks, but marketed Oxy as safe for humans. The Supreme Court of Korea upheld that decision on appeal by RB (Korea)[16].

The Supreme Court decision on RB Korea, which no-doubt applies to the other suppliers of PHGP-based disinfectant humidifiers, is of course absolutely no comfort to those who have lost their family members, due to the use of Oxy and other products. However, companies, and especially multinational companies, should be held accountable for their actions or omissions. This article will now look at the some of the questions around liability of the companies that produced these products.

Ⅲ. The Product Liability Act 2002

The Product Liability Act 2002 (henceforth known as the PLA) is the product liability statute in Korea that currently governs defective product liability. The PLA was enacted on 12 January 2000 and became effective on 1 July 2002. The PLA was expressly enacted as a non-retroactive legislation that would only apply to products delivered after the effective date thereof. Prior to the enactment of the PLA, claims for harm caused by defective products were based on general tort principles provided under the Civil Code, whereby liability was predicated on negligence. As it is highly likely that most of the disinfectant humidifiers were bought and used after 2002, it will be the PLA that will be the applicable law.

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16) http://www.koreaherald.com/view.php?ud=20150528001158

Under the PLA, a defective product is defined as a product that lacks the level of safety that would be ordinarily expected by a consumer. The three types of defects recognised under the PLA are: manufacturing defect; design defect; and indication defect. A manufacturing defect exists if there is a discrepancy between the manufactured product and the intended design that causes the product to be unsafe. The finding of a design defect would depend on the determination of whether there was a reasonable alternative design that would have made the product safer than the existing design. An indication defect would be found if the indications (ie, instructions) provided were not reasonable or adequate to warn of the dangers of using the product or of foreseeable misuses of the product[17]. In the present case it is likely that a Korean Court would find, given the KFTC's finding of no adequate warning, that there was at least in indication or labelling defect with regards these products. There may also be a design defect which is based on the fact that PHGP was wrongly used.

The PLA imposes liability to any or all parties along the chain of manufacture of any product, for damage caused by the defective product, so as to provide a financial guarantee for compensation. Possible respondents in a product liability action include manufacturers, sellers, importers, distributors and service providers[18]. Interestingly, a manufacturer includes: a person who has listed himself/herself on the Product by way of name, business title, or trademark as a person defined by item (a)[19]. This would seem to indicate that even a company which simply placed its trademark on a product could be held liable under the PLA. In the present case, it does not matter what role the end supplier of the disinfectant humidifier had in actually manufacturing the final product. It would be sufficient that it put it name or trademark on it. This would indicate that at least companies such as RB Korea and Cefu could be held liable, even if they did not produce the harmful chemical itself.

As described above, most of the victims have used more than one disinfectant humidifier product, in which the actual harmful chemical itself was produced by a

17) Article 2, PLA 2002.

18) Article 3, ibid

19) Article 3(b), ibid

number of different chemical companies. The PLA states that if two or more parties are liable for compensation for the same injury caused by a product, all parties may be collectively liable for the compensation[20]. This would seem to mean that all the parties involved in the *manufacture* and *supply* of that product are joint and severably liable in law, and that the plaintiff could go against all or any of them for full compensation for his injury. Clearly, unless there were special reasons not to, it would be easier to go against just one defendant for the injury, and that defendant may in turn seek recompense from the other wrong-doers. This applies to a situation where Hanvit produced the PHGP, which was then blended and supplied by RB Korea. A plaintiff could sue Hanvit or RB Korea, or both of them, for full compensation. However, where multiple products were used, and where it is impossible to ascertain which product caused what level of harm, it still may be possible to go after one of the wrong-doers to obtain full compensation for the injury.

Under the PLA, the manufacturer is held strictly liable for damages that are caused by defective products[21]. This means that fault or negligence will be presumed in cases involving a product defect. Further, the recent trend by Korean courts to alleviate the burden of proof of the plaintiff with respect to the issue of causation may be maintained in the application of the PLA in certain circumstances. In the present case, where the issue of causation remains extant, it could be argued that it is for the manufacturer or supplier to prove that his disinfectant humidifier did not cause the injury in the specific case. It is understood that over 200 claims have been filed in the Korean Courts, and that causation has been challenged. The manufacturers and suppliers are disputing, the finding of the KFTC that the products should have had warning labels, the findings of the two investigations into the causes of injury of individual cases, and the independent research done showing the connection between disinfectant humidifier use and HDLI. It is further understood that RB Korea may be challenging the findings of the Government investigations in court[22]. However,

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20) Article 5, ibid

21) Article 3(1), ibid

22) http://www.theguardian.com/world/2015/may/24/uk-firm-poison-claim

given the burden of proof in product liability cases, and the evidence of the toxicity of PHGP, it does not seem likely that they will succeed.

Article 4 of the PLA provides a number of exemptions to the liability of a manufacturer. It is understood that none of these have been raised so far in proceedings in Korea. In any event, it would be difficult to argue that the manufacturer could not have discovered the defect in question with the scientific and technical knowledge available at the time of the supply of the product[23] (as the only possible exemption to liability), when there was evidence of toxicity in 2002, and further tests could and should have been carried out to ascertain its suitability for disinfectant humidifier use. The burden rests with the manufacturer to establish and prove the state of the art defence. The manufacturer is required to prove, among other things, that the defect was not discoverable at the time of supply even with due care. Further, the manufacturer is required to prove that he or she has taken all necessary proactive measures to vigilantly guard and ensure the safety of the product even after the delivery into the marketplace.

With regard to the statute of limitations for product liability cases, the PLA provides for a three year, short-term statute of limitations and a 10 year, long-term statute of limitations. Specifically, the statute of limitations will bar a claim under the PLA if such claim is not filed within three years of the awareness of the occurrence of the damage and of the identity of the person responsible for the damage, or within 10 years from the date that the defective product was delivered, whichever occurs earlier[24]. Limitation is of course, a preliminary challenge to a claim, however it is understood that limitation has not been raised in any of the claims filed in the Korean Courts. In relation to the short-term statute of limitations, the earliest diagnosis of HDLI amongst victims was in April 2014, and the limitation period would presumably commence at that time. In relation to the long-term statute of limitations, the PLA states: provide that, in the case of an injury which results from the accumulation of a harmful substance in the human body or symptoms appearing after a certain dormant period, the statute of

23) Article 4(1)(2).

24) Article 7

limitations time period shall begin on the day the injury is discovered[25]. Consequently, the limitation period would begin once the death or diagnosis of injury took place, which would most likely have been after 2011. The companies would be unlikely to have the claims dismissed because of limitation.

The heads of damage available under Korean law, include both compensatory damages and non-compensatory damages. Compensatory damages under the PLA include human life, human property and/or property. This would include mental distress both of the victim, and presumably of the victim's family. Whilst, aggravated and punitive damages, are not specific heads under Korean law, in effect courts have a wide discretion to award substantial damages in cases of serious bodily harm or death, and will look at totality of the circumstances in determining a damages award. There is no cap for damages under the PLA.

One major disadvantage with the Korean legal system in relation to product liability claims, or indeed other tort claims, is that there is currently no mechanism for group or class action. This is clearly a hinderance when filing mass claims against defendant(s) as in the present case.

Ⅳ. Filing in the United Kingdom

This disadvantage of filing claims in Korea in relation to personal injury caused by the use of disinfectant humidifiers, could partly be overcome if a claim could be filed against a foreign company in a jurisdiction which does allow for group actions. Obviously, a connection with a foreign company has to be made, normally where a foreign company is the parent company of the subsidiary which has allegedly caused the personal injury. In the present case, could RB Plc be held liable for personal injury caused by RB Korea?

RB Plc is a British company, headquartered in Slough, UK, and listed on the London stock exchange[26]. It is a multinational company which had a 8.8 billion

25) Article 7(2).

26) http://www.rb.com/home

turnover, for the year 2013-14[27]. The UK allows group action claims to be take n[28]. Under British law, the law for determining the issues arising in a claim, in particular whether a tort has occurred, is the law of the country in which the events constituting the tort in question occur, in this case Korea[29]. Therefore, Korean law will apply. This will further apply to other defences such as limitation. However, the quantum of damages may, if the use of the disinfectant humidifier(s) largely took place *before* 11.1.09, be calculated on English rates of quantum[30] and not those applicable in Korea.

It would appear from the above law on product liability that there is a strong argument that RB Korea would be liable in tort for personal injury caused by Oxy. If a correct reading of the PLA is that a manufacturer is strictly liable for personal injury, and that the burden of proof is on him to show that his product did not injure, then the Committee reports and research papers, set out a decent case on causation. RB Korea would have to obtain their own research to refute this. The evidence would also indicate that there was information about the toxicity of PHGP, in particular when inhaled, from at least 2002. There appears to be no good reason why the potential risks of using the product were not informed to its users. Neither does there appear any good reason why further testing could not have been done to ascertain the effect of prolonged or confined use.

Ⅴ. The Issue of Parental Liability

Moreover, the issue of whether RB Plc would be liable for the actions, or omissions of RB Korea, would also be decided under Korean law. Would the PLA hold RB Plc strictly liable, given its trademark on Oxy? Would Korean law hold RB Plc liable on the basis of a unified system of management of the group?

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27) http://www.rb.com/documentdownload.axd?documentresourceid=84374

28) see Part 19 of the Civil Procedure Rules (in particular Group Litigation Orders).

29) http://www.legislation.gov.uk/ukpga/1995/42/contents

30) see Homawoo v GMF Assurances SA [2011] EUECJ C-412/10, 6 September 2011

Would Korean law hold RB Plc liable if it had negligently done due diligence (investigation) into the operations of RB Korea before or after acquisition? Would Korean law hold RB Plc liable on the basis of policies on the control and management of subsidiaries? These are all questions which require further investigation.

In the English case of the *Chandler v Cape PLC,* (2012) EWCA Civ 525, the Court of Appeal held that parent responsibility for actions of its subsidiary, may be include situations where:

a) The businesses of the parent and subsidiary are in a relevant respect, the same;
b) The parent has, or ought to have, superior knowledge on some relevant aspect of health and safety in the particular industry;
c) The subsidiary's system of work is unsafe as the parent company knew, or ought to have known; and
d) The parent knew or ought to have foreseen that the subsidiary or its employees would rely on its using that superior knowledge for the employee's protection. It is not necessary to show that the parent is in the practice of intervening in the health and safety policies of the subsidiary; the court will look at the relationship between the companies more widely. It may be sufficient if it is shown a parent company has a practice of intervening in the trading operations of the subsidiary for example production and funding issues.

Ⅵ. Advantages of Filing in the United Kingdom

Whilst piercing the veil to find a parent company liable for the actions of its subsidiary is clearly an obstacle, there may be procedural advantages of filing in the UK. Aswell, as the ability to take large group action claims, these would include a conditional fee arrangement where legal fees are only obtained from the losing defendant. This means that the claimants do not pay any legal fees even if they lose. Neither under the general rule for qualified one-way cost shifting

(QOCS) in personal injury claims, would the losing claimants pay the defendants costs[31]. There is consequently a very strong incentive to keep costs low and to settle claims in line with the pre-action protocol in personal injury cases[32].

Ⅶ. Conclusion

Further investigations will be required to assess whether RB Plc would be liable in law for the omissions of RB Korea. If it is, then it may well be beneficial to bring a claim against RB Plc in the UK. However, the tragedy of disinfectant humidifiers in Korea raises a wider issue in relation to the corporate accountability of large multinational companies, which acquire companies in foreign countries where the legal systems are deficient. Initiatives which promote access to justice through funding, and simplify the law in relation to parent company liability, are to be welcomed. The global legal system needs to address the realities of an increasingly globalized world if human rights are to be protected.

31) Rule 44.13-44.18, Civil Procedure Rules.

32) https://www.justice.gov.uk/courts/procedure-rules/civil/protocol/prot_pic#1.1