

Case Study - Concerns raised over safety of laser printers
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-----Original Message-----

From: Ron (Captain of oil tanker)
To: Claire (Regional Manager)
Subject: LASER PRINTERS COULD HARM LUNGS

Good day Claire,

I have found the following in a local National newspaper regarding the harmful affects of laser printers. We have two laser printers on board, 1 in admin office and 1 in CECR.
Could you please advise if this is indeed true?

Quote

LASER PRINTERS COULD HARM LUNGS:

Office laser printers could be as hazardous to your health as smoking a cigarette. A new study shows tiny particles are spewed from some printers and settle in the lungs causing exactly the same damage as cigarette smoke.

An Australian study has found some laser printers spew out invisible particles so dangerous you may as well be smoking. The Queensland University of Technology study of over 60 different laser printers found up to a third are releasing high levels of unsafe material believed to be microscopic bits of toner.

The particles in the air increase five-fold during work hours when printers are in high use. The emissions are worse when the printer has been loaded with new toner. And the risk goes up if you are printing graphics and photos.

Unquote

Thanks and Best Regards,

Captain Ron

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From: Claire (Regional Manager)
To: John (OH Adviser) + others
Subject: LASER PRINTERS COULD HARM LUNGS

To all,

I have received the following query from one of our Captains.
Can anyone shed any light on the merits of this health
concern?

Kind regard and thanks

Claire

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From: John (OH Adviser)
To: Claire (Regional Manager)
Subject: LASER PRINTERS COULD HARM LUNGS

Claire,

Thank you for drawing to my attention. Yes, there has been a lot of email traffic on this. Whilst we are not aware of any problems from the normal use of laser printers, we are investigating and trying to track down the original paper. Once we have this we will review and circulate a note. On the basis of past work on laser printers, there is no need for any additional action at this time. With press reports of this nature, we always try to get the source documents and then review in the light of other scientific information available.

Once we have looked at the paper we will be in a position to advise further on the basis of factual information.

Hope that helps

John

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The information reported in the media was also picked up by another concerned employee who e-mailed the OH team

"Has anyone seen or heard of this issue around toner particles from laser printers being an office health hazard? The research work was done in Australia".

Quoting from an article in the media:

"Now, in a discovery that appears to have happened by chance, researchers have found that laser printers are responsible for a significant amount of potentially carcinogenic emissions."

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From: Sarah (xxx University, Australia)
To: John (OH Adviser)
Subject: LASER PRINTERS COULD HARM LUNGS

Thank you for your interest in the research undertaken by xxx University of Technology.

For copies of the paper published in the American Chemical Society's *Environmental Science and Technology* journal (which includes a list of the printers involved in the study), please visit this link. If you have any issues with accessing the paper you will need to contact the journal directly as xxx University does not own the copyright for the article and we cannot forward extracts.

<http://pubs.acs.org/journals/esthag/index.html>

- The article is titled ***Particle Emission Characteristics of Office Printers.***

You can also find the media release relating to the study on the xxx University website. (Link given)

Regards
Sarah

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From: Tim (Senior OH Adviser)
To: Claire (Regional Manager, Ron (and others))
Subject: LASER PRINTERS COULD HARM LUNGS

There has been a lot of press in the past 48 hours regarding a study which supposedly found "alarming" levels of fine particulate emissions from some laser printers. We are trying to get more information on the actual nature and findings of the study. At this point it appears that much of the press coverage has raised a level of alarm that is totally out of proportion to any actual risk. We have no reason to believe that commonly applied procedures for installing, servicing and maintaining this equipment is in any way inadequate to protect health.

We'll get more specific and factual information about this report to you as it is available, but please tell your people that they don't need to move the printers out into the parking lot or go get the old dot-matrix printers out of the cellar.

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From: John (Senior OH Adviser)
To: Tim (OH Adviser), Claire (Regional Manager) + others
Subject: LASER PRINTERS COULD HARM LUNGS

It is fascinating to compare the actual paper with the press stories, and also read the quotes related to Prof. M in the press link in the email from ???????

In the paper the only reference to health effects is in the sentence, below which relates to Indoor Air Quality (IAQ) in general -

"Many studies have reported associations between health complaints and poor IAQ (1-3), and there is mounting evidence that exposure to poor IAQ leads to excess morbidity and mortality (4)"

In addition it acknowledges that little is actually known and goes on to endorse the "precautionary principle" thus -

"In general, there is very limited information available on the emission of particles from office equipment, especially from printers. Thus it is important to develop a better understanding of the emissions from the printers in order to achieve good indoor air quality and to minimize human exposure to these pollutants."

I would bet there are far more important contributors to IAQ, however, than particles from office equipment.

The only link to cigarette smoke refers to concentration of submicrometer particles only and makes no comparison on the relevant toxicity of each source -

"The highest printer particle number emission rate found in the chamber study was 1.6×10^{11} particle min⁻¹, which is close to the median value of sub-micrometer particle number emission rates for activities, such as cigarette smoking (1.91×10^{11} particle min⁻¹), occurring in residential houses (20)"

The final summary is also interesting in that, it seems only to call for more research and acknowledges that there are many factors still unknown!

The high standard deviation of the average emission rates estimated in this study also indicates that the particle emission process and the behavior of individual printers are complex and that they are still far from being completely understood. Many factors, such as printer model, printer age, cartridge model, and cartridge age may affect the particle emission process and all of these factors require further study

All in all... it has given the international media a wonderful contribution to the silly season!

Best Wishes

John

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From: Tim (Senior OH Adviser)
To: John (OH Adviser), Claire (Regional Manager) + others
Subject: LASER PRINTERS COULD HARM LUNGS

I've just finished reviewing the paper.

I certainly agree that the contents of the paper do not even begin to support the new hype. I'll get out a note to the network.

I think we can conclude that:

- Printers can emit particulates, but some might not
- The two examples of the same model printer might or might not emit the same amount of particulate; we don't know why
- Some models of printers might emit more than other models some of the time but might also emit less than the others sometimes
- Old toner cartridges might or might not emit more or less than new toner cartridges
- Not all the particulate is the same size
- We don't know anything about what the particles actually are and it probably would be nice to know more about that
- Indoor air particulate concentrations in an office increase when there are people in the office and decrease when they leave
- We have no reason to believe there is a problem from printers

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Then - a few months later!!!

From: Tim (Senior OH Adviser)
To: Claire (Regional Manager, Ron (and others))
Subject: LASER PRINTERS COULD HARM LUNGS

Some of you may recall a flurry of emails in August this year reporting a BBC article relating to particulate emission from photocopiers. This quoted an Australian study. In doing so the press misrepresented the information in the paper and caused unnecessary concern and email traffic. This week there was an item from CBC News in Canada on the same topic. The CBC retained an environmental, health and safety consulting firm, to undertake testing of office printers at three different locations in Winnipeg. The full report is not available, the material is not published, nor is it peer reviewed and should thus not be taken on face value. This news report also cited the Australian study as the basis for their study and article.

<http://www.cbc.ca/canada/toronto/story/2007/10/22/printer-study.html#skip300x250>

I am writing to draw this to your attention in case there are any queries raised as a consequence. Our advice is the same as before

- There is no value in further distribution of this article.
- We have no reason to believe there is any widespread problem from printers of this type.
- Deal with this as you would any other query relating to the working environment based on good occupational hygiene practice.

Press reports are notorious in misrepresenting scientific information. The peer reviewed Australian article is attached and you can read for yourself what the authors do and don't say. The bottom line is that the source peer reviewed article merely concluded further studies are required - and that is no surprise.

Regards

Tim