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# Comparison of hazard assessments performed with a control banding scheme and occupational exposure limits

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# Background

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- Risk assessment for chemical exposures
  - Assess the exposure (measure/model)
- Compare the exposure with established risk values - OEL



# One control banding scheme

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Exposure class/ Hazard class	A	B	C	D	E
1	3	3	3	2	1
2	3	3	2	2	1
3	3	2	2	1	1
4	2	1	1	1	1

Hazard: A = lowest risk. E = highest risk

Exposure: 1 = lowest exposure, 4 = highest exposure

Risk: 1 = highest priority, 3 = lowest priority



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*Ann. Occup. Hyg.*, 2015, 1–15  
doi:10.1093/annhyg/mev027

The Chartered Society for  
Worker Health Protection



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# Comparison and Evaluation of Multiple Users' Usage of the Exposure and Risk Tool: Stoffenmanager 5.1

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# Classification scheme for COSHH-essentials

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Hazard group	H-statements
A	H303, H304, H305, H313, H315, H316, H318, H319, H320, H333, H336 and all H-number not otherwise listed
B	H302, H312, H332, H371
C	H301, H311, H314, H317, H318, H331, H335, H370, H373
D	H300, H310, H330, H351, H360, H361, H362, H372
E	H334, H340, H341, H350



# One control banding scheme

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OEL



Exposure class/ Hazard class	A	B	C	D	E
1	3	3	3	2	1
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3	3	2	2	1	1
4	2	1	1	1	1

Hazard: A = lowest risk. E = highest risk

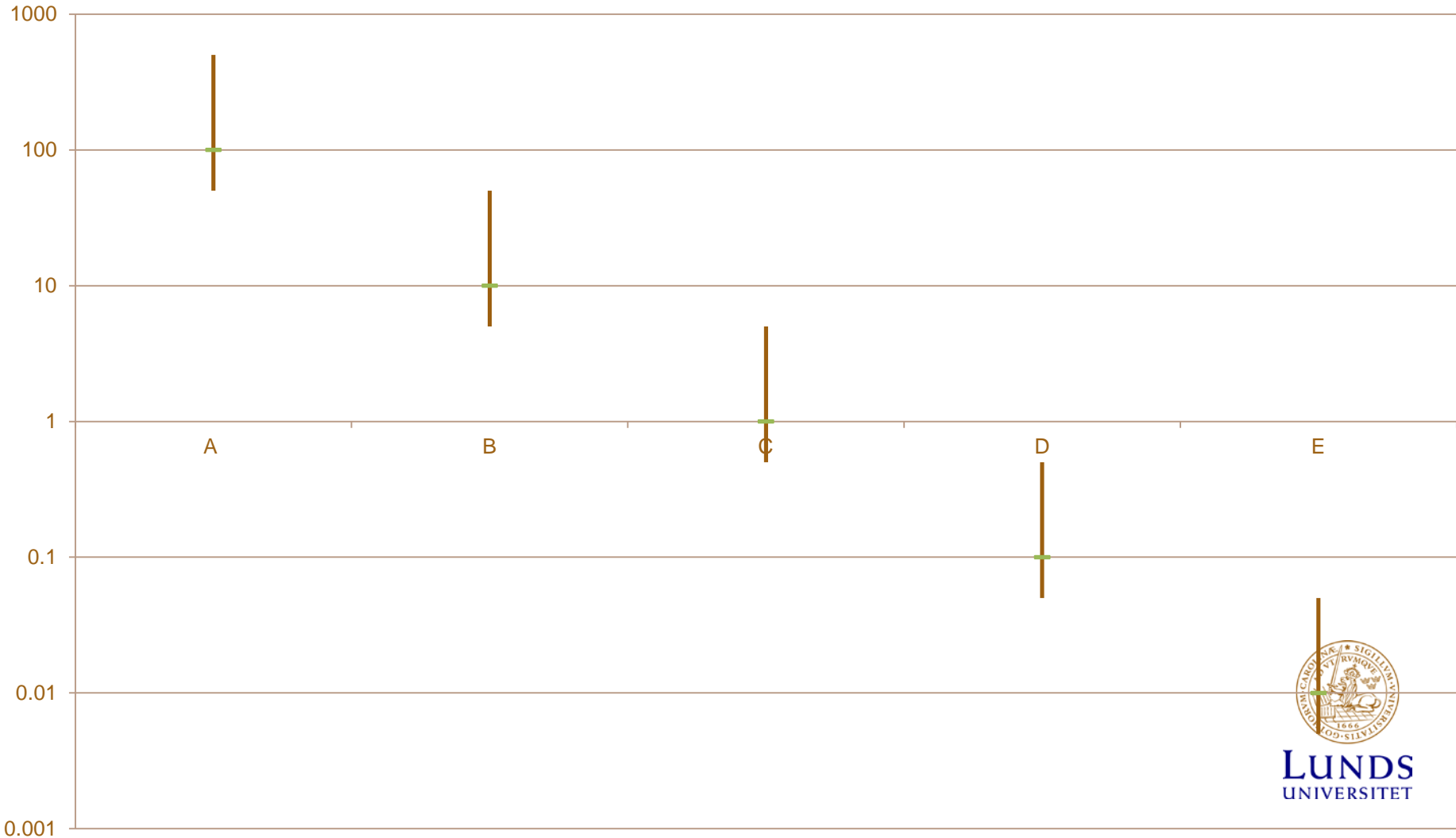
Exposure: 1 = lowest exposure, 4 = highest exposure

Risk: 1 = highest priority, 3 = lowest priority



# Ideal world

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# Aim

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- Is there a correlation between the hazard groups and occupational exposure values (OEL)
- Are there differences depending on the origin of the OELs, (Sw, UK, MAC, DNEL)
- Is there a pattern depending on the H-phrases





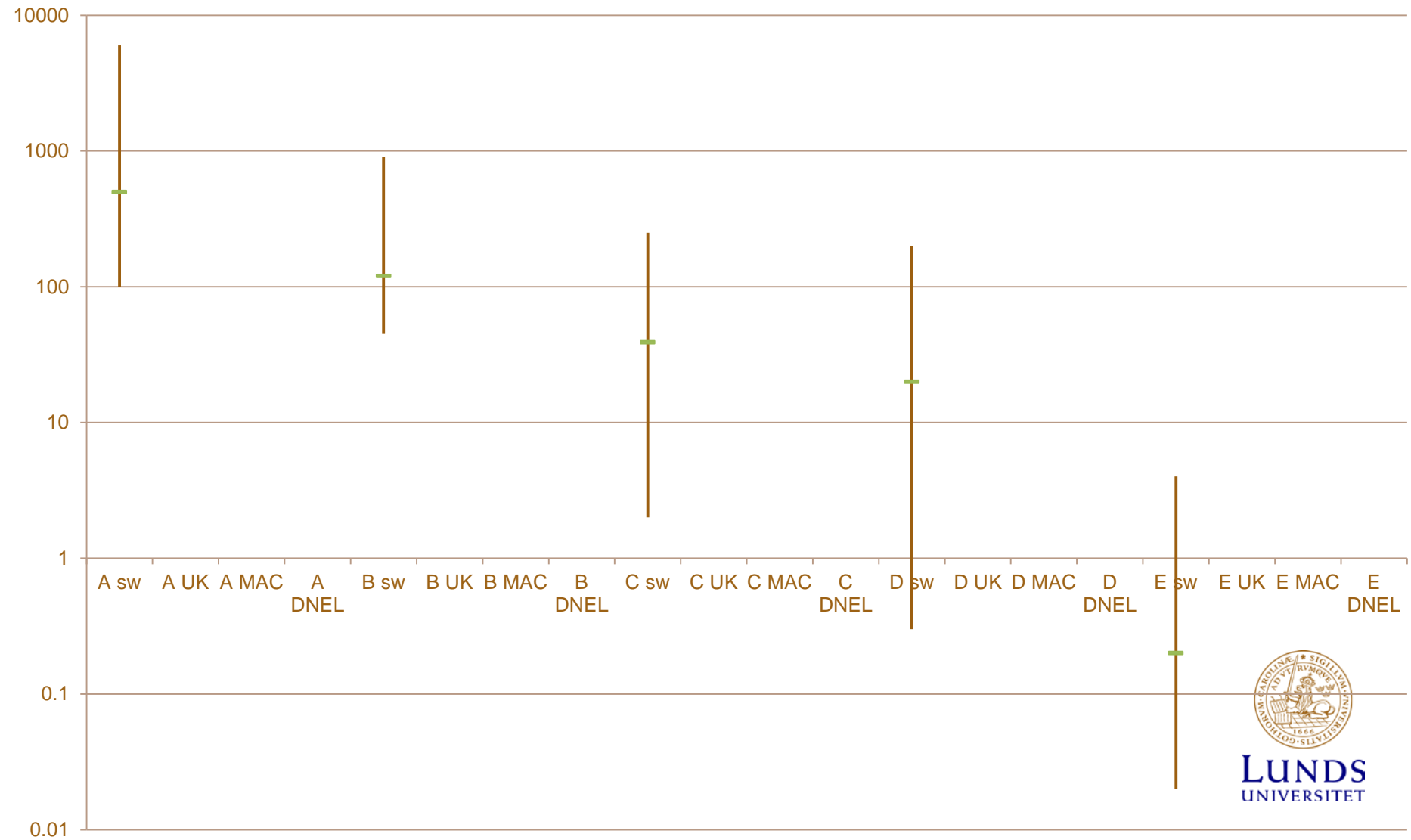
# Methods

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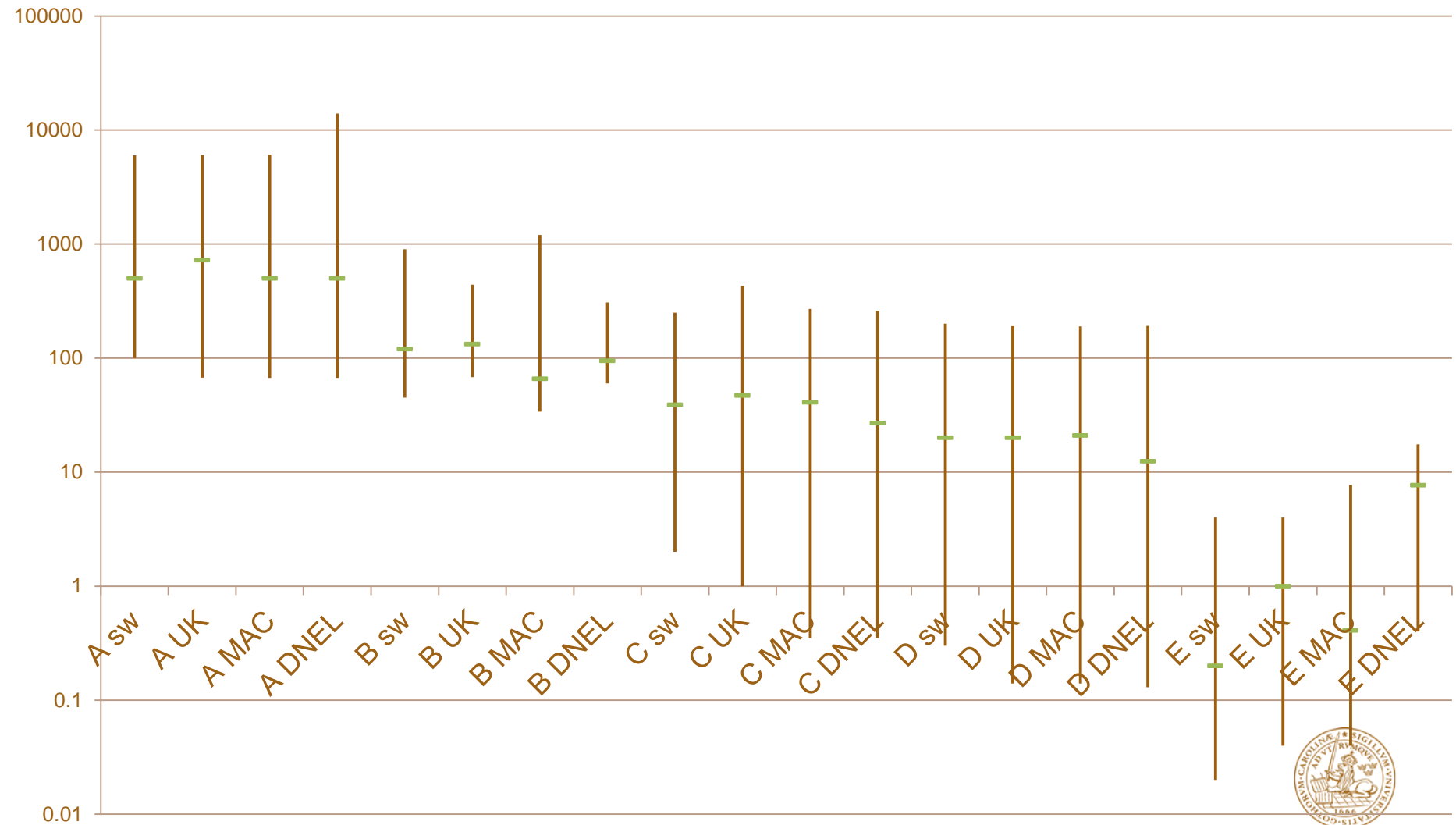
- Compilation of OELs from IFA
  - Sweden
  - UK
  - MAC
  - DNELs
  - R-phrases and H-phrases; COSHH manual => A to E
- 71 Substances with data from all sources
- 170 with data from Sw and UK



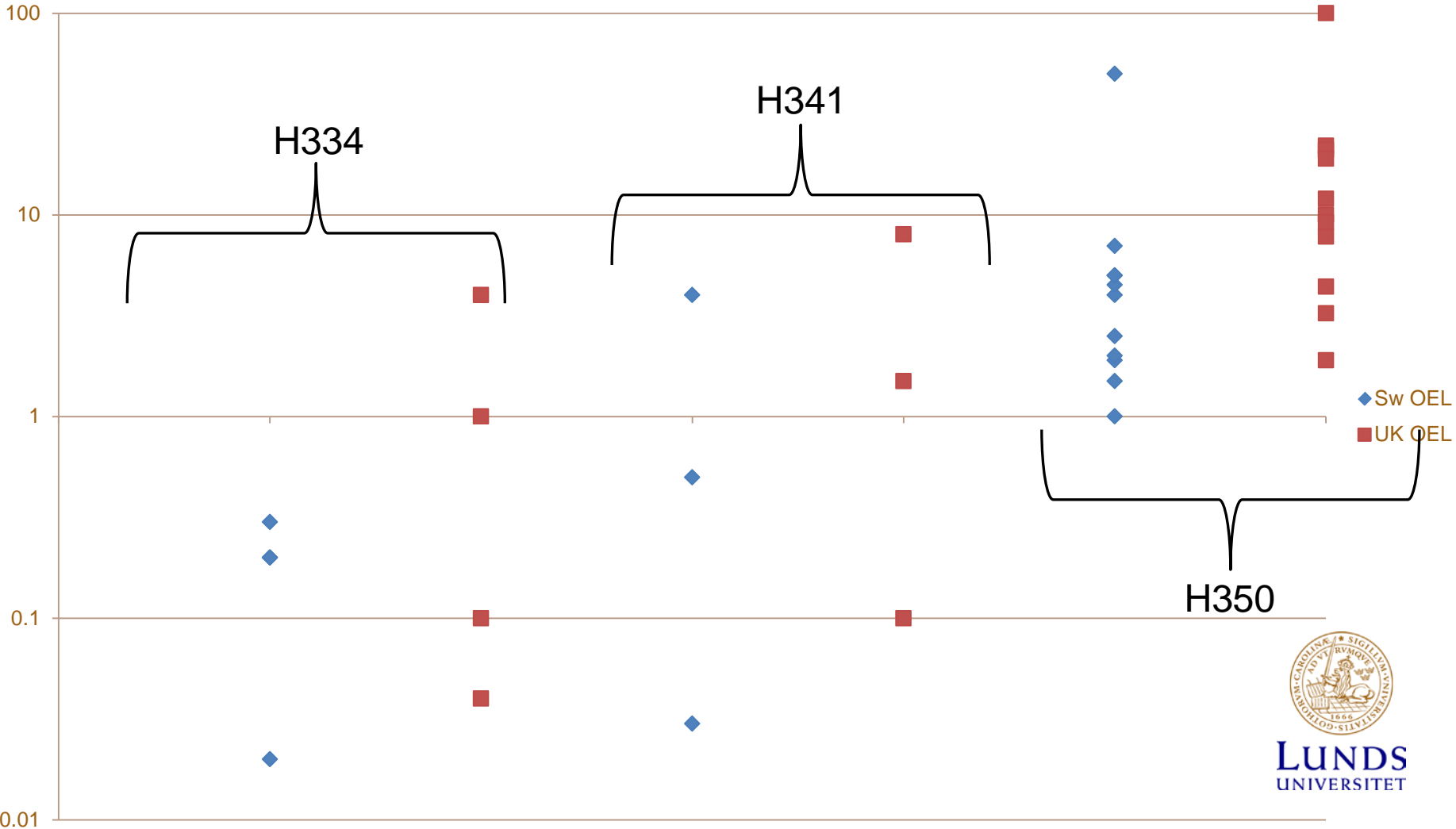
# Results



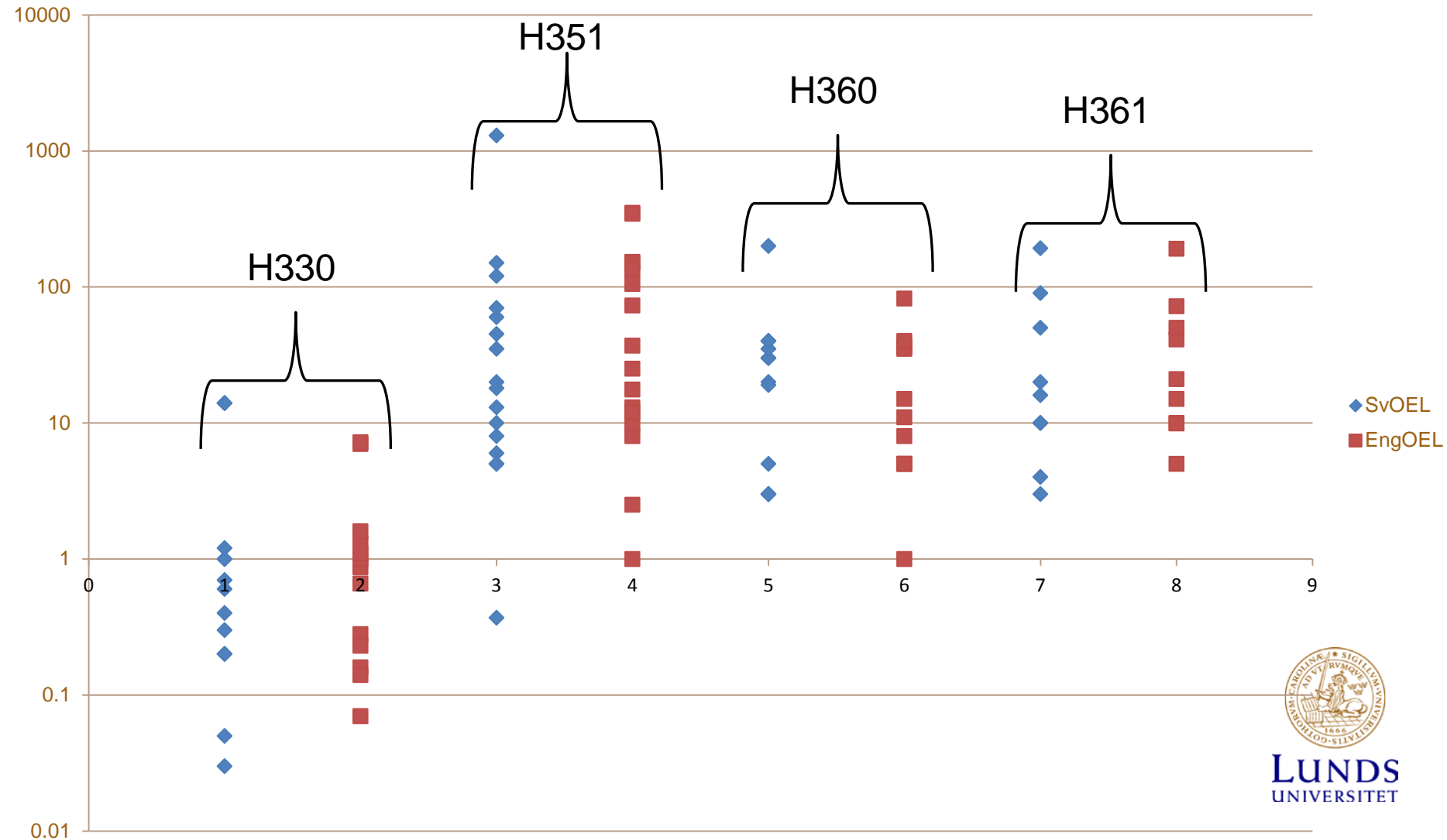
# Results



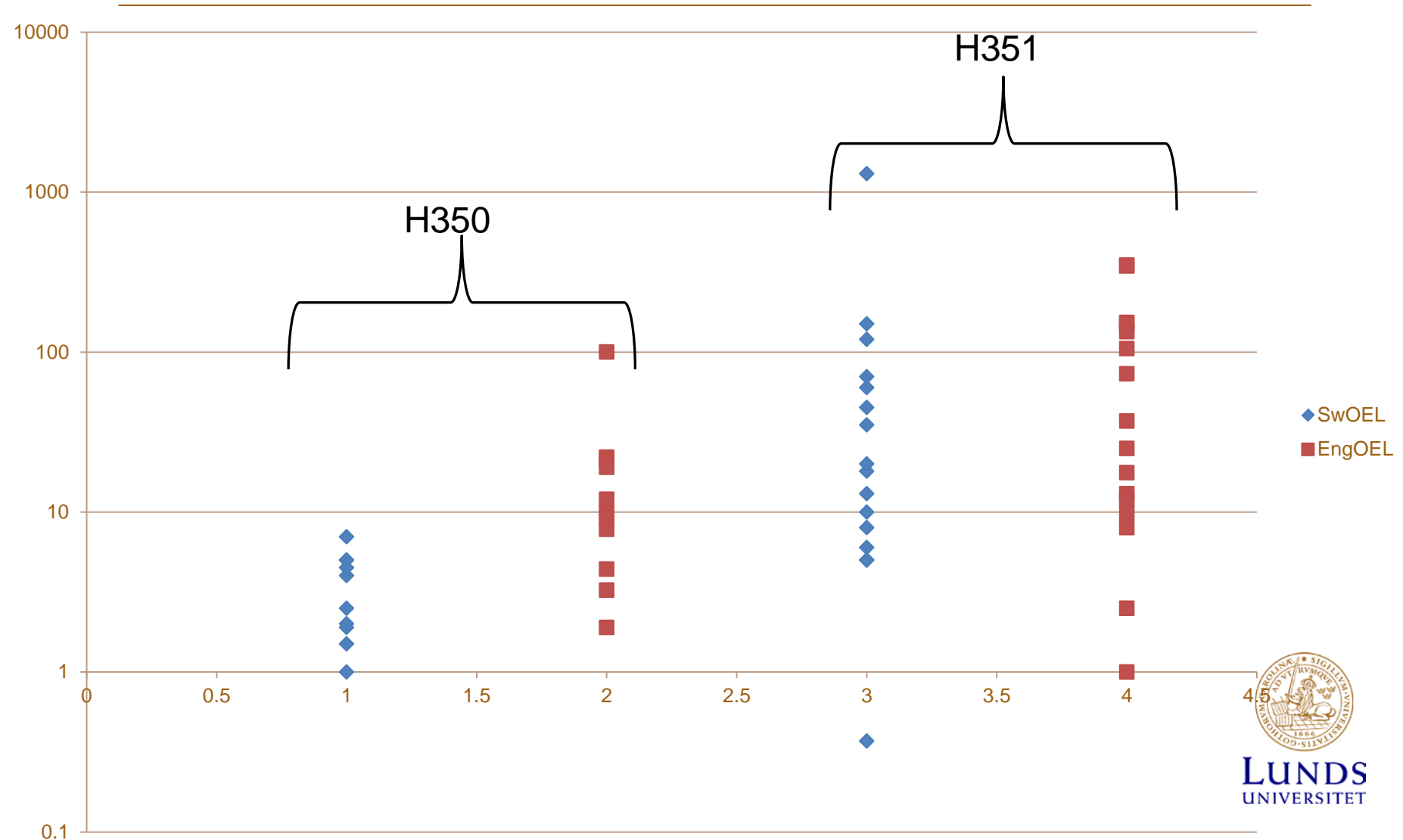
# 18 Substances in Hazard group E



# 50 substances in Hazard group D



# Substances Hazard group 350 and 351



# Conclusion

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- Huge overlap between the OELs between the different Hazard classes
- There seems to be a difference in how risk assessment is performed for substances with effect on the lungs compared to other effects
- There seems to be an overlap between "may cause" and "suspected"



# Thanks to:

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- Linda Schenk, Royal Institute of Technology, Stockholm, Sweden
- Hanna Landberg, Lund University, Sweden







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Questions or comments?

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