MOTUL TECH
Baraldi
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MASTER THESIS WORK

Effect Of Traditional Products applied in Aluminum Extrusion on Human Health and improvement opportunities offered by STAG 11 from *MOTUL Baraldi*

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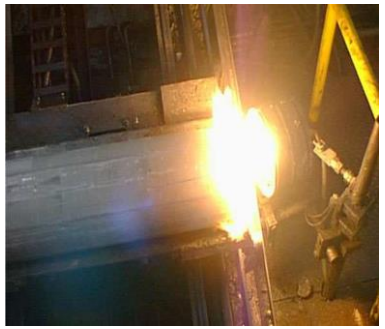

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STAG 11 VS CARBON BLACK

STAG 11 offers superior lubrication while avoiding health issues

- No fumes production
- Applied by spraying
- Not inflammable
- No powederes involved, less risks of respiratory issues

CARBON BLACK (ACETYLENE FLAME) the most relevant risk for operators health is different types of cancer

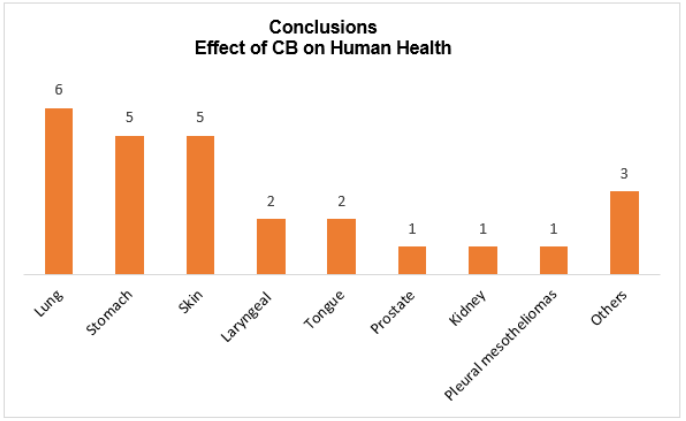

Figure 3.4 – Number of studies in which specific diseases were observed. Different values of SRIs were found in each case, but all of them were around 1, except for lung cancer (SRI average= 1,13) and skin cancer (SRI average= 1,17)

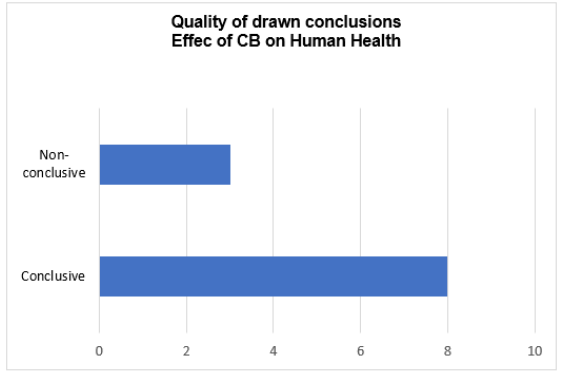

Figure 3.3 – Quality of drawn conclusions

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STAG 11 VS CARBON BLACK

3.b - Definitive conclusions from selected publications

Publications with conclusive observations were analyzed. As shown in graphic 3.4, different types of diseases were observed, nevertheless, the most relevant ones are lung cancer, stomach and skin. These were detected in 6 and 5 out of 8 selected sources.

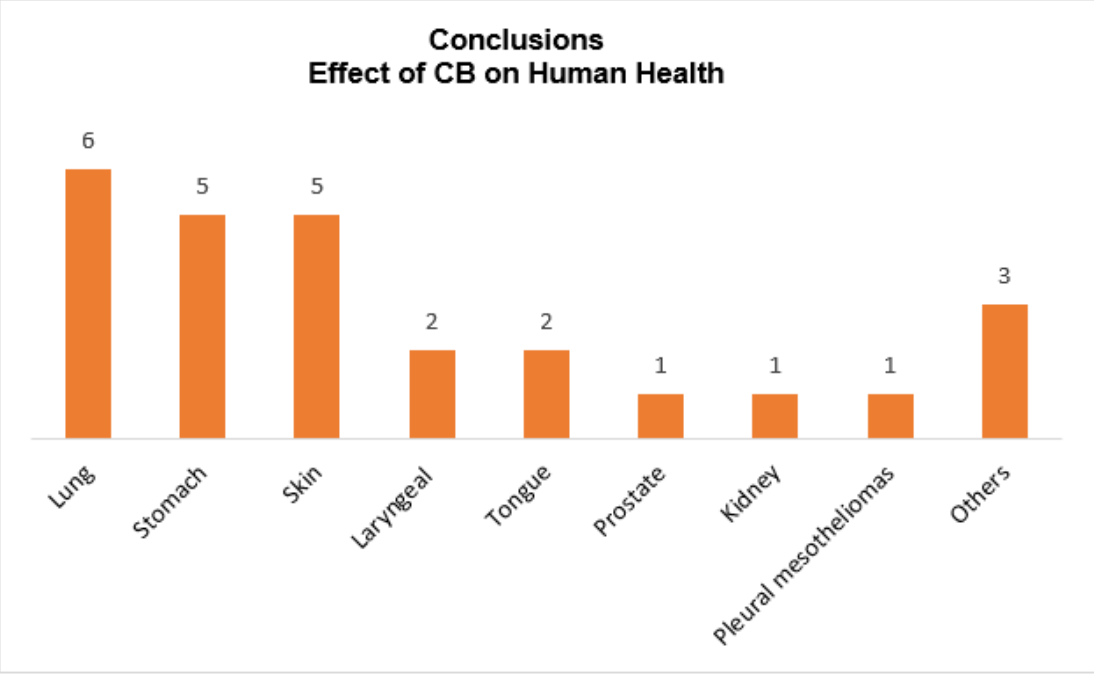

Figure 3.4 – Number of studies in which specific diseases were observed. Different values of SRIs were found in each case, but all of them were around 1, except for lung cancer (SRI average= 1,13) and skin cancer (SRI average= 1,17)

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STAG 11 VS GREASES

3.2.1- Related issues

No research publications about pigmented greases specifically was founded in the literature, nevertheless, some studies reported a series of general issues related to application of greases. These are listed below.

- Flammability of the product is the main hazard source when applying pigmented greases. These burns when they touch the hot surface of the tooling.
- Produces smoke in the working environment with risks of flame.
- If the grease is graphite-based, highly conductivity of this element must be considered, since it can create a short circuit for any electrical equipment nearby.
- The product is messy and needs repeated application almost every cycle, which can only be applied manually. This fact constitutes another hazard source, since manual application increase risk of direct contact between product and operator's skin [4].

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STAG 11 VS BORON NITRIDE POWDER

STAG 11 offers superior lubrication while avoiding health issues

- No fumes production
- Applied by spraying
- Not inflammable
- No powederers involved, less risks of respiratory issues

BORON NITRIDE if the particle size is 5 micron or smaller it is a «micro-dust» with associated risk if it is inhaled

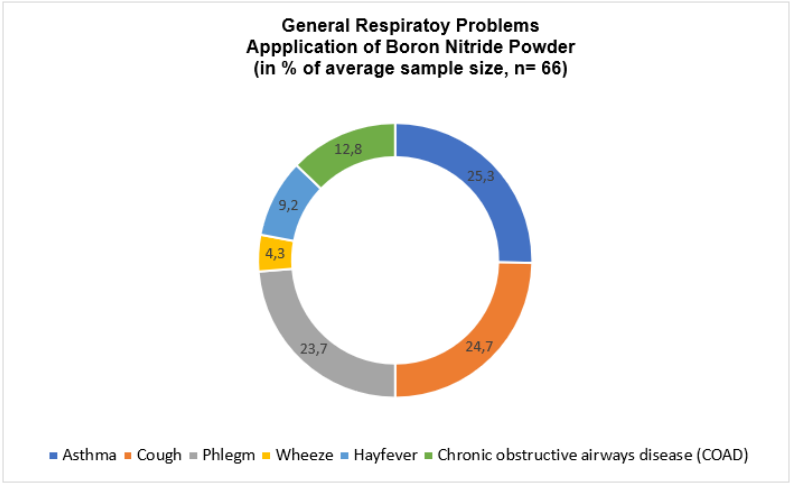

Figure 3.10 – Types of respiratory diseases mostly detected.

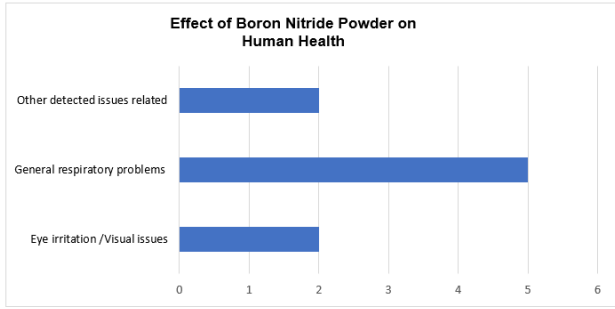

Figure 3.9 – Issues observed in different studies.

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STAG 11 VS BORON NITRIDE POWDER

From the reported *general respiratory diseases*, a deeper analyze was carried out. According to the information sources consulted, apparently a relatively significant proportion of the BN product is transformed into micro-dusts during handling and application in working environments, causing issues such as asthma and cough which are constantly exhibited by employers in contact with the product. The percentages shown below are referred to the average sample size studied (considering the all selected publications)

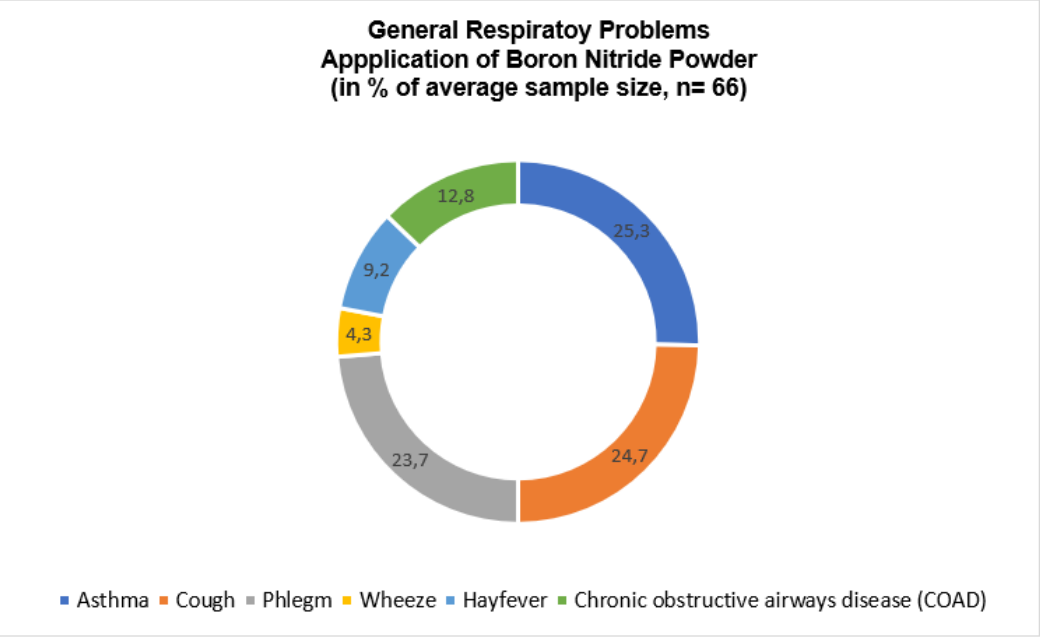

Figure 3.10 – Types of respiratory diseases mostly detected.

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CONCLUSIONS

Proposal of *MOTUL TECH Baraldi* consists on an innovative release agent, STAG 11, which is an aqueous solution easily applied by spraying. The main advantages of this product regarding health and safety for workers are presented in table 4.1.

Considering this information, it is possible to affirm that STAG 11 would be an optimal replacement to traditional products. It would provide the necessary protection to metal parts involved without expose workers to aggressive and harmful working conditions.

STAG 11 – MOTUL TECH Baraldi	
Aspect	**Advantages in comparison with other products**
Safety in working environment	*Fumes release*. No fumes or aggressive vapors formed.
	Powders. No powders involved. Risk of respiratory issues should be less
	Flammability. Not flammable, less risks of fire in working environments.
Application	*Spraying*. Easier to apply and no direct contact with human skin.

Table 4.1 – Main advantages offered by STAG 11 of MOTUL TECH Baraldi.

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