

Final report 2003216

Client: PB Swiss Tools

CH-3457 Wasen

Persons

responsible: Mrs. Eva Jaisli, Mr. Max Baumann

Object under test:

Investigation: Clarification of hazardous materials according to Investigation list 0408

Method:

Received:

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Summary

In general, having observed the processes and having viewed the relevant documentation (safety data sheets) as well as having questioned suppliers, it can be assumed that the products of PB Swiss Tools do not exhibit any contamination according to the substances given in **Investigation list 0408**.

In my opinion there is no need for PB Swiss Tools to take any action as regards this question.

1 Remit

The products of PB Swiss Tools should be checked as regards the compounds listed under point [2] and the results communicated to the customer openly and confidentially. The work is split into the following 2 stages:

Stage 1: The individual manufacturing processes investigated as regards the substances listed under point [2]. Possible substances are evaluated for their effect/relevance and assessed over the remaining manufacturing process. Specification options are suggested for possible, relevant materials on the product. Product packaging is not taken into consideration during this work. The results are put together in writing.

Stage 2: Relevant materials are analysed according to the specification options suggested in Stage 1.

2 Assessment of manufacturing processes

On 7 October 2003, the individual manufacturing processes were viewed under the guidance of Mr. Hansjörg Kohler and the relevant persons responsible for processes in the Wasen and Grünen factories and inspected for possible problematic substances. In my opinion, the process steps examined basically present no problems as regards the substances given in **Investigation list 0408**, with the exception of electroplating and bronzing. The individual process steps are explained in greater detail and assessed below. In this respect, we have abided by the leaflet "*In 24 steps from raw material to quality PB screwdriver*".

2.1 Step 1: Raw materials, storage

This process step is irrelevant here, as subsequent hardening takes place at high temperatures. All rust protection agents (greases, oils) are destroyed by being burnt off in this process.

2.2 Steps 2, 3: Cutting to length and turning to size

This process step is irrelevant here, as subsequent hardening takes place at high temperatures. All cooling lubricants (greases, oils) are destroyed by being burnt off in this process.

2.3 Steps 4, 10: Degreasing

This process step could be relevant, as the product used (halogenalkane) is included in **Investigation list 0408**. However, the product is completely removed from the parts as a result of subsequent treatment, and especially during hardening.

2.4 Steps 5, 6, 7: Manufacturing blades

This process step is irrelevant here, as subsequent hardening takes place at high temperatures. All auxiliary materials (greases, oils) are destroyed by being burnt off in this process.

2.5 Steps 8, 9: Manufacturing "wings"

This process step is irrelevant here, as subsequent hardening takes place at high temperatures. All auxiliary materials (greases, oils) are destroyed by being burnt off in this process.

2.6 Steps 11, 12: Heat treatment of blades

Compounds that could be formed under certain circumstances due to heat treatment are removed from parts by the subsequent annealing and grinding of tool parts for the following process steps. In my opinion, it is for this reason, that this process step has no relevance here.

2.7 Step 13: Grinding

Auxiliary materials used in this process step (cooling lubricants) are removed in the electroplating procedure (degreasing pretreatment, aftertreatment). Consequently, this process can be regarded as irrelevant here.

2.8 Step 14: Covering tips

An irrelevant process step in this respect.

2.9 Step 15: Electroplating

This process step demonstrates the greatest interference as regards the substances included in **Investigation list 0408** (mainly inorganic salts based on chromium (VI) and nickel (II)). The brighteners used do not represent a problem as regards the materials included in **Investigation list 0408**.

During the manufacturing process, the metal salts solubilised are reduced to metals and, in my opinion, no longer remain on the product in a form that could be harmful to health. Metal salts on the surface not reduced are removed in the subsequent cleaning process.

2.10 Step 16: Electroplating aftertreatment

This process step indicates no relevance.

2.11 Step 17: Laser labelling

This process step indicates no relevance.

2.12 Steps 18, 19: Bronzing, degreasing of blades

As with process step 15, a potential for risk does exist, but to a lesser extent. Inspection of the safety data sheets for the materials used shows that they have no relevance with regard to the substances included in **Investigation list 0408**.

2.13 Step 20: Final inspection

This process step indicates no relevance.

2.14 Step 21: Injection moulding of handles

No monomers of the plastics used are included in **Investigation list 0408**. For this reason, this step can be regarded as irrelevant as far as this investigation is concerned. However, it would be interesting from a technical processing point of view to check the quality of the granulates used over a longer period of time using the analysis certificates of the manufacturer as regards any possible contamination caused by monomers. It could also be of interest to analyse the handles for possible breakdown of the polymer chain.

2.15 Step 22: Labelling

Given the inks used, this process step could have a slight relevance here. The inks and pigments used (labelling and PVD coating) are harmless as regards the materials listed in **Investigation list 0408**.

2.16 Step 23: Assembly

This process step indicates no relevance.

2.17 Step 24: Packaging, despatch

According to the data available, the packaging materials (boxes, blister packs, pallets, etc.) used by PB Swiss Tools for tools, etc. are harmless. Adhesive tapes used and to a certain extent also artificial leather pouches are PVC-coated and could contain residual monomers. However, the coatings do not come into direct contact with the workpiece and are therefore irrelevant as far as this investigation is concerned. The leather pouches sometimes used are made using an environmentally-friendly vegetable tanning process and not harmful chromium (VI) tanning.

3 Further procedure

Having completed the work, there is no further requirement for treatment for Stage 1.

In my view, Stage 2 can be waived for this project.

4 Literature

- [1] Various PB Tools documents
- [2] List of relevant materials (Investigation list 0408)

Burgdorf, 9 March 2004

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