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**Sub-Committee of Experts on the Globally
Harmonized System of Classification
and Labelling of Chemicals**
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(agenda item 2)

History of the Development of the Chronic Hazard Symbol Principles for Selection

Transmitted by the experts from Canada and the United States of America

1. Discussions regarding a symbol to convey chronic or serious health effects have now been underway for several years. It appears useful to recount the steps taken to date to further inform the current debate on this topic.
2. When the International Labor Organization's Work Group on Hazard Communication began its deliberations, all of the existing systems were examined to determine what different means were used to convey information.
3. In the area of chronic or serious health effects, the group found that there were different approaches in the 3 major systems that addressed such effects (i.e., transport does not cover these endpoints). In Europe, a skull and crossbones was used. In Canada, there was an abstract symbol called a toxic T, which is a T made to look like an exclamation point. In the US, no symbol was used. The range was therefore quite extreme.
4. When studies regarding symbols are consulted, it is generally found that the best symbols are those that convey the specific hazard in an obvious way, i.e., nearly everyone will recognize the hazard immediately. There are few that meet this design criterion. The flammability symbol, a flame, is generally recognized well by a range of people. Other more abstract effects, such as oxidation, are not recognized without training.
5. Chronic or serious health hazards are similarly abstract, and there is no symbol that can universally convey such effects and thus serve that purpose in the GHS. This is particularly true given that it would be applied to such diverse effects as sensitization and reproductive toxicity.
6. As a result, some began with a position that the GHS should not include a symbol for such health effects since it was not possible to have one that immediately conveyed the hazards.
7. Others believed that the skull and crossbones is appropriate because it connotes a serious effect. Therefore, people will react in an appropriate way to the symbol to avoid exposure. It was also felt that protection would be lost if the labels no longer had such a symbol for chronic effects.

8. However, the skull and crossbones is very widely used around the world to convey poison, or immediate acute effects. Therefore, there was a concern on the part of some that using the skull and crossbones in this alternative way dilutes the effect of the symbol for acute toxicity (e.g., on pesticides), as well as inaccurately conveying the possibility of an acute effect for something that actually has very long-term effects.
9. It was also agreed during the development of all symbols that any possible confusion with the transport system should be avoided. The transport system uses the skull and crossbones for acute toxicity. It was therefore considered that its use for supply as a chronic effect warning could be confusing.
10. Ultimately, all parties agreed to have a symbol for chronic or serious health hazards as part of the GHS. This was a major concession on the part of those who did not believe an appropriate symbol could be designed. In return for that concession, the group agreed to several symbol design principles to guide the choice of symbols. As with all other parts of the development of the GHS, the parties sought to compromise for purposes of consensus, but also to address the many legitimate concerns raised during the discussion over a long period of time.
11. First, the skull and crossbones could not be part of the symbol so as not to affect its use for acute effects, and to avoid possible confusion with transport symbols.
12. Second, the symbol should be abstract since there is no symbol that can convey the specific effects it will be applied to under the GHS.
13. Third, there needs to be recognition that under the GHS, the symbol will never appear by itself. It will always be accompanied by signal words and hazard statements, as well as other pertinent information. Therefore, its primary purpose is to attract attention, as opposed to conveying the specific hazards. In the workplace, where this symbol is most likely to be used, there is usually training as well to put the information in the context of the potential risks of exposure in the specific workplace conditions.
14. In addition to these factors, the symbol should be simple to reproduce well. One that has a lot of detail that can be lost when presented in a small size is not appropriate. It was also thought that it should be effective when the red diamond frame is black. Other important characteristics that have surfaced during further discussions include gender neutrality and not giving misleading information, i.e., suggesting a different type of effect than the ones being conveyed.
15. An example of a similarly significant hazard for which such an abstract symbol has been designed is the biohazard symbol. It was picked in part because it had no known meaning, and thus would not be misleading, but was easy to remember. It was also felt to be highly visible, and its design was such that it would look the same no matter how it was positioned. Tests that compared it to other symbols were conducted, and it was remembered most frequently by the test subjects. It was abstract and attention-getting, and is very well-recognized today as a result of training people to understand what it is meant to convey. It also represents a range of specific hazards with one generic symbol. This is the type of symbol that would meet our criteria.

16. The symbol search began with a graphic artist at the ILO designing some alternatives. This was followed by the development of some alternatives in Europe and in the US. About a year ago when this issue was being actively considered, there were dozens of graphics that had been developed. And yet none of them really met the requirements above, or satisfied the concerns the various parties had raised during this process.
17. Ultimately a vote was conducted. By far, the double exclamation point was the symbol participants chose, although a number of parties indicated they still were not happy. It was a compromise position after significant discussion and debate, and came closer to satisfying the requirements than the other choices did. However, people have continued to look for an appropriate symbol, and therefore further alternatives have been developed and circulated.
18. As the Subcommittee continues to work on this issue, it appears that the design principles enumerated above can inform the debate. A symbol that meets the criteria specified (e.g., abstract, not easily confused with existing symbols, etc.) will best satisfy all of the affected parties in this discussion, and provide the most effective information possible for chronic and serious health hazards.