



Sharp and Howells Pty. Ltd.

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20th November, 1987

Re: Sokerol - Chemical Inertness
O/No: 1375
Lab. No: 87/A/1273

We have examined a sample of Sokerol with respect to its possible reaction with common chemical types.

We understand that previous work has related to hydrocarbon oils and solvents. This work seeks to explore new areas in which Sokerol might be used. Such uses may be either intentional or unintentional.

The results are listed in tabular form as an appendix to this report. However, we feel the following comments are worthy of expansion from those tabulated.

GENERAL

Sokerol consists of fibrous and powdered materials and when added to water requires an initial wetting time to be rapidly followed by absorption. Consequently those mixtures containing a surfactant (e.g. agricultural sprays etc.) rapidly wet and are absorbed into Sokerol.

We attempted to obtain some measure of affinity for absorption and for the majority of materials one part by weight of Sokerol absorbed 2 parts by weight of material to give a mass that could be manipulated as a "Spadeable Solid".

In the dry state no violent reaction was observed with powerful oxidising (solid) agents. Dry pool chlorine (calcium hypochlorite) did not produce heat (exothermic reaction) or fumes. However, when damp a typical exothermic reaction occurred after an induction period of about 3 minutes the violence of this reaction was frightening.

Similarly the reaction between Sokerol and concentrated nitric acid was predictably dangerous.

Both of the above situations are typical of powerful oxidising agents and were the only cases where any dramatic effect was noted and should serve to warn against the use in these situations which are predictable, rather than detract from the many situations where Sokerol could be used.

Although no reaction was observed with other materials, viscous substances (e.g triethanolamine) did not "wet" the Sokerol and had to be stirred in.


CONCLUSIONS

The absorbent properties of Sokerol can be used to contain water soluble or dispersable materials to obtain a spadeable mass that can be transported for disposal or further treatment.

Sokerol could be used as an absorbent in situation involving spillage of reactive materials. Predictably it is not suitable for the dilution or absorption of strong oxidising agents (e.g. dry pool chlorine, concentrated nitric acid), but could be used as a primary treatment to contain other corrosive spillage.

Yours faithfully
SHARP & HOWELLS PTY. LTD.

Reg W. Broadbent



REACTION OF SOKEROL WITH COMMON REACTANTS

| <u>REAGENT</u> | <u>TEST</u> | <u>RESULT</u> | <u>COMMENT</u> |
|------------------------------------|--|---------------|--|
| Water | (parts absorb by one part Sokerol) | | |
| | (2.5) Cold | NOR | pH 5.3 Safe |
| <u>ACIDS</u> | | | |
| Concentrated Hydrochloric acid: | (1.8) Cold | NOR | Safe |
| Hydrochloric acid 50%; | Cold (1.6) (60 %) | NOR NOR | Safe |
| Concentrated Sulphuric acid: | (2.2) Cold | NOR | Chars with some evolution of heat. <u>Not recommended</u> |
| Sulphuric: Acid 50 %; | (1.8) Cold (60 %) | | Darkens Chars. <u>Not recommended</u> |
| Concentrated Nitric Acid: | Cold | Dangerous | Immediate nitration. Nitrous fumes evolved with heat. |
| Nitric acid: 50 % | (1.8) Cold | NOR | Darkening of material Reasonable safe |
| Acetic acid: | (1.4) Cold | NOR | Safe |

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REACTION OF SOKEROL WITH COMMON CHEMICAL AGENTS

NOTES RELATING TO TABLES

NOR

No Observed Reaction
(i.e. visual or significant temperature rise)

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Figures given under heading test indicates the parts by weight absorbed per one part of Sokerol.

NB 1 part Sokerol by weight is approximately 3 parts by volume

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| REAGENT | TEST | RESULTS | COMMENTS |
|---|-------|---------|----------|
| <u>OTHER MATERIALS</u> (Agriculture) | | | |
| MALDISON INSECTIDE | | | |
| In Toluene: | (1.2) | NOR | Safe |
| Diluted in water: | (1.8) | NOR | Safe |
| DEMETON-S-METHYL SYSTEMIC INSECTIDE | | | |
| In solvent: | (1.5) | NOR | Safe |
| Dilute in water: | (1.8) | NOR | Safe |
| TRICHLOROFON | | | |
| In Solvent: | (1.5) | NOR | Safe |
| Diluted in water: | (1.9) | NOR | Safe |
| ENDOTHAL (Herbicide) | | | |
| | (1.8) | NOR | Safe |
| Diluted in water: | (1.8) | NOR | Safe |



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| <u>REAGENTS</u> | <u>TEST</u> | <u>RESULT</u> | <u>COMMENTS</u> |
|---|--------------------|------------------------------------|--|
| <u>BASES</u> | | | |
| 50 % Sodium Hydroxide: | (2) Cold (60 %) | Slight temp. rise | Chars slowly. Safe Chars. Reasonably safe |
| Concentrated Ammonium Hydroxide (.880): | (2) Cold | NOR | Safe |
| Triethanolamine: | (1) Cold | NOR | Safe |
| Pyridine: | (1.5) Cold | NOR | Safe |
| <u>OXIDISING AGENTS</u> | | | |
| Nitric Acid: | | Potentially dangerous. | See work under acid. <u>Not recommended.</u> |
| Hydrogen Peroxide 100 V: | | See notes | No exothermic reaction occurred. Sample became quite solid. <u>Not recommended</u> |
| Calcium Hypochlorite: | 1 + 1 mix | See notes potentially dangerous | No reaction when when damp little reaction for about 3 mintues then violent exothermic reaction. <u>Not recommended.</u> |

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