

## INTRODUCTION

The physical fundamentals of the control of floating hazardous chemicals on a water surface do basically not differ dramatically from those known from oil pollution control and from sanitary engineering. Consequently a number of passive and active measures from these scenarios will be applicable for the control of floating chemical pollutants, too. Such passive measures, which leave the substance in the water body, are (fig. 1).

- the do-nothing-principle,
- neutralisation,
- mechanical booms and barriers,
- dispersion,
- precipitation,
- chemical oxidation,
- biologic degradation, or
- change of the material characteristics.

From these measures only mechanical barriers have proven to be acceptable as control measures on running waters or at sea, e. g. for oil pollution control. The physical fundamentals for their successful operation have been subject to the first part of this report.

Active measures, which will be to remove the chemical from the water body, are

- the burning of the chemical (which will only change the form of appearance of the chemical) and
- mechanical recovery devices.

This report will deal with mechanical recovery measures which will be physically investigated and discussed concerning their effectiveness.

Contrary to booms and barriers which will passively control floating liquid chemicals once discharged into the hydrosphere i. e. that the hazardous substance will remain in the aquatic environment, the intention of recovery devices will be to remove the chemical from the water body as completely as possible. That means that the design strategy for pick-up devices will have to be total removal, i. e. a 100 % recovery rate.

This can only be technically and economically reasonably achieved when the chemical still can be found in an easily removable form i. e. drifting coherently at the water surface. Once dispersed or dissolved the chemicals slick will not lend itself anymore to separate recovery. As liquid chemicals, however, once discharged into the hydrosphere will quickly spread and cover a relatively large area after a relatively short time period, (whereby oil will spread slower than most of the other liquid chemicals (fig. 2)), the immediate availability.