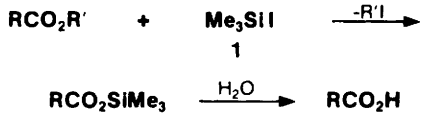
Selective Cleaving Reagents

Iodotrimethylsilane

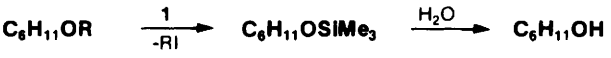
Iodotrimethylsilane (1) has recently been introduced by Jung[1] and Olah[2] as an efficient and convenient reagent for the cleavage of esters and ethers under neutral conditions. **Iodotrimethylsilane** has advantages over other dealkylating agents in that mild, homogeneous reaction conditions can be employed.[2] Hence, a mixture of **1** and a carboxylic ester, either neat[2] or in an aprotic solvent, gave the corresponding acid on heating and subsequent aqueous hydrolysis.



tert-Butyl and benzyl esters were rapidly dealkylated at 25°C, whereas methyl, ethyl, and isopropyl esters required higher reaction temperatures.

Iodotrimethylsilane has also been used to cleave alkyl and aryl ethers.[2,3] Jung and Lyster[3] have recently examined cleavage conditions for a wide variety of ethers. For example, heating an excess of **iodotrimethylsilane** with alkyl aryl ethers gave good yields of aromatic trimethylsilyl ethers (**2**). These may be converted to their respective alcohols by simple hydrolysis.

Certain alkyl ethers are selectively and quantitatively cleaved, as shown in the following equation:



R = *t*-Bu, CH_2Ph, CPh_3

The ester and ether cleavages with **iodotrimethylsilane** apparently do not affect isolated double bonds, ketones, thioethers, amines, or amides.[1]

Aldrich offers **iodotrimethylsilane** in 5- and 25-g units, stored over copper.

References:
1) M.E. Jung and M.A. Lyster, *J. Am. Chem. Soc.*, **99**, 968 (1977).
2) T.-L. Ho and G.A. Olah, *Angew. Chem., Int. Ed. Engl.*, **15**, 774 (1976).
3) M.E. Jung and M.A. Lyster, *J. Org. Chem.*, in press.

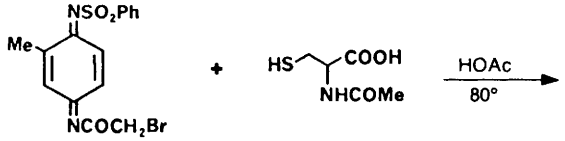
19,552-9 Iodotrimethylsilane **5g $9.60; 25g $32.00**

Cyssor I

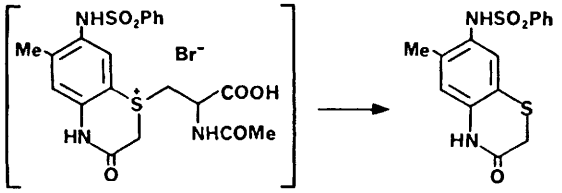
Cyssor I [2-methyl-N^1-benzenesulfonyl-N^4-(bromoacetyl)quinonediimide, **1**] is a new reagent designed by R.G. Lawton and T.J. Holmes for cysteine modification and selective cleavage of proteins.[1] The term **Cyssor I** is an acronym for "cysteine-specific scission by an organic reagent" which appropriately describes the reagent's function.

Cyssor I offers potential applications in protein modification and structure determination. It has the advantage that it can be employed under mildly acidic conditions, thereby suppressing complications arising from the use of strongly alkaline conditions.

The incubation of ovalbumin or reduced bovine pancreatic ribonuclease with **Cyssor I** resulted in fragmentation believed to occur at the sulfhydryl sites. Evidence for this selective protein cleavage is based on the reaction of **Cyssor I** with a model substrate, *N*-acetylcysteine (**2**). The reaction in-



1, Cyssor I **2**



3 **4**

volves regiospecific alkylation (easily monitored by ultraviolet spectroscopy) and subsequent cleavage to yield **4**, isolated as a solid in 75% yield. Degradation of **3** can occur *via* either of two proposed routes, both of which result in cysteine-specific cleavage.

Aldrich offers **Cyssor I** as a stable, yellow, crystalline solid.

Reference:
1) T.J. Holmes, Jr. and R.G. Lawton, *J. Am. Chem. Soc.*, **99**, 1984 (1977).

19,584-7 Cyssor I **1g $12.00; 5g $48.00**

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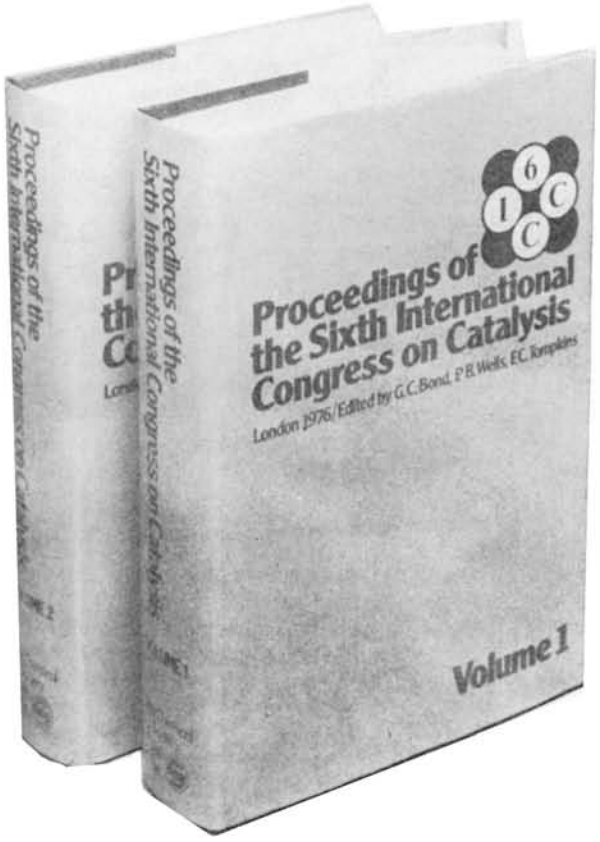

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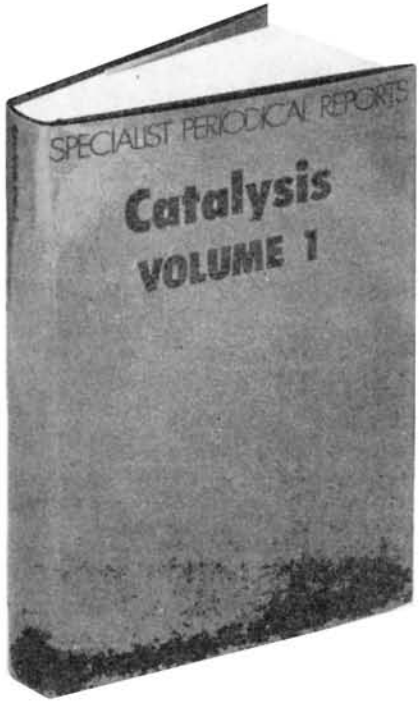

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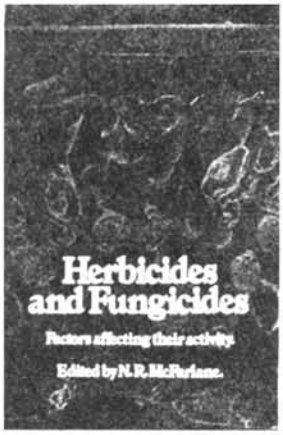

SPECIAL PUBLICATION No. 29

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FACTORS AFFECTING THEIR ACTIVITY

Edited by N. R. McFARLANE, *Shell Research Ltd.*

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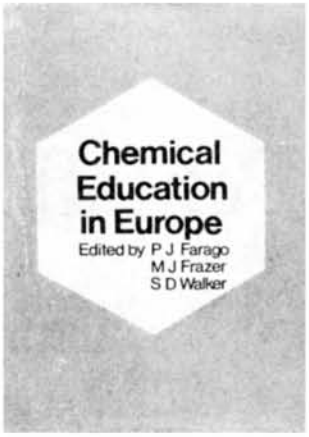

The science of chemistry has always been international and recent developments have added a new reality to this concept. Chemical education in Europe and the United Kingdom can now be regarded as a coherent whole, despite local differences and the exchange of people, both at staff and student levels, is proceeding apace. This book fulfils two needs: it describes the flavour of chemical education in a number of major European countries, based upon the experiences of well-known educators, at both secondary and tertiary levels. In addition it also provides a reference volume, collecting together a mass of information hitherto only available in widely scattered publications, which has been updated through personal interviews and questionnaires. It provides invaluable background and reference material both for those involved in the study and comparison of European education systems, and for those who are thinking of spending some time at an institution in a foreign country.

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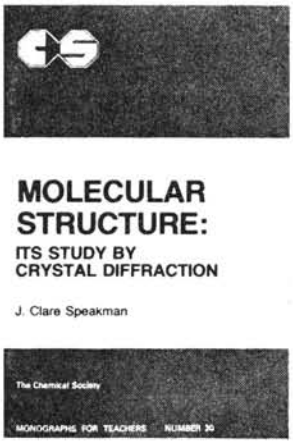

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By J. CLARE SPEAKMAN

Most chemists have become conditioned into believing that the molecule is 'really there'; they develop an image of it, with given size, shape and motions, and with certain relations with its neighbours. Though such simple faith is no doubt open to metaphysical attack, it works well. It receives apparent support from the wealth of information on molecular properties now accessible to physical methods of study. Those methods based on the diffraction, by crystals, of X-rays, and some other radiations, are particularly powerful. Their impact on the chemist may be likened to the experience of actually meeting a person, with whom communication had hitherto been restricted to the telephone. This monograph offers an elementary explanation of crystal-diffraction by X-rays and neutrons, and goes on to illustrate the results obtainable on a variety of molecules.

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