

*Silicon-Based
Synthetic Reagents:*

*Tetrasubstituted
Organosilanes*



Gelest



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Maxfield Parish



Morning

Maxfield Parish (1870-1966) is among the most important American illustrators of the 20th century. He carried out his undergraduate studies at Haverford College in Pennsylvania, where as part of a liberal arts program, he completed a course in chemistry. Our front cover is a reproduction of his laboratory notebook pages dated Friday May 23, 1890.

His more well-known pieces maintain the fantasy and freshness demonstrated in his chemistry notebook. His celebrated works are known for their photorealism and a luminescent quality that he later perfected. From a chemist's perspective this was, without doubt, due to the chemistry training that encouraged him to experiment with new materials and techniques. (Cover Art Courtesy of Haverford College Library, Haverford, PA - Quaker Collection)

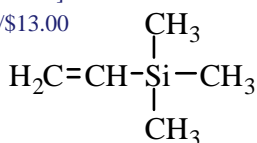
Silicon-Based Synthetic Reagents: Tetrasubstituted Organosilanes

Organosilanes have shown a variety of advantages in synthetic organic chemistry. The advantages demonstrated in synthetic organic chemistry can be traced to several factors key among which are: 1) stabilization of a β -carbocation – important in the chemistry of vinyl- allyl- and enolsilanes; 2) stabilization of an α -carbanion – essential in the formation of olefins via the Peterson and related reactions; 3) comparable stability to the all carbon analogs in many cases making them more stable to water and air

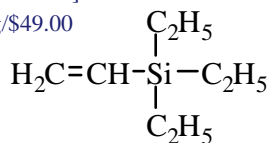
than other metallic organometallic species and, therefore, more easily handled and candidates for replacement of carbon units in biologically active molecules. Herein are presented some of the organosilanes offered by Gelest. All of these organosilanes have four carbon ligands attached to the silicon atom with, in most cases, one or more of the ligands carrying an organic functionality available for further modification.

UNSATURATED ORGANOSILANES –

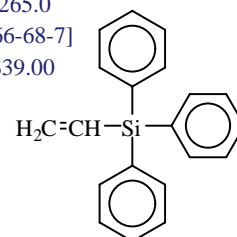
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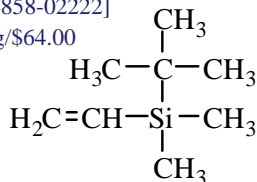
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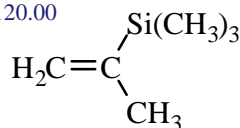
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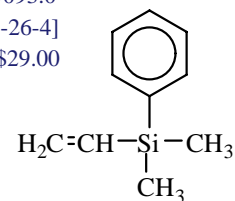
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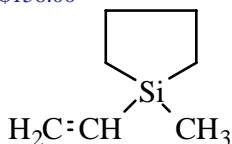
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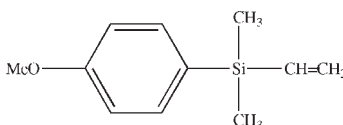
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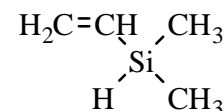
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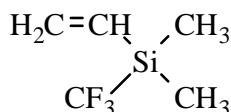
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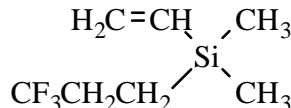
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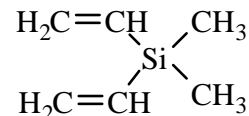
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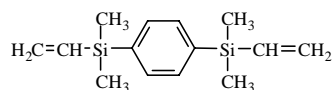
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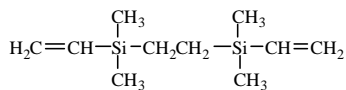
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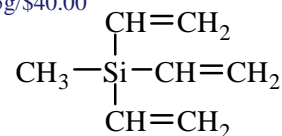
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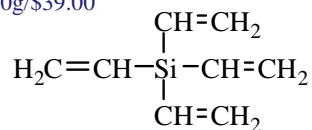


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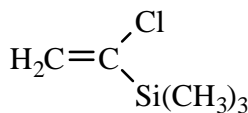
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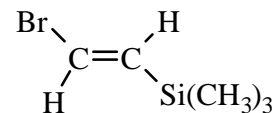
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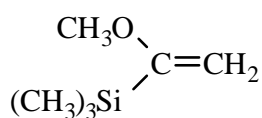
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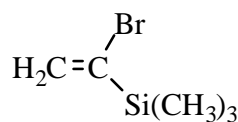
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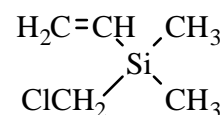
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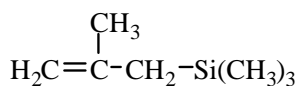
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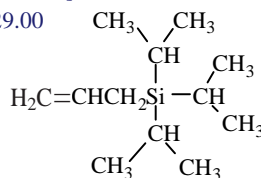
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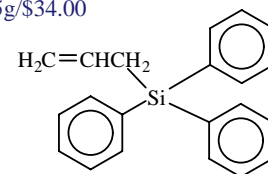
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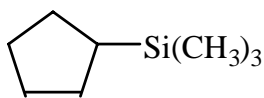
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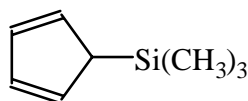
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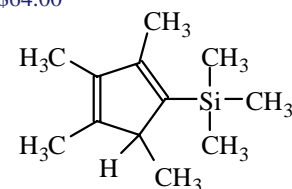
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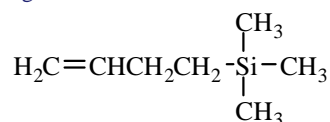
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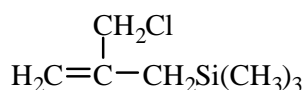
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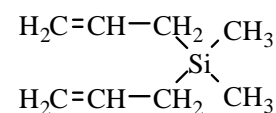
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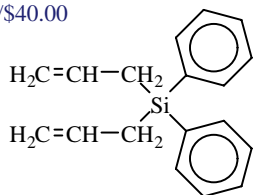
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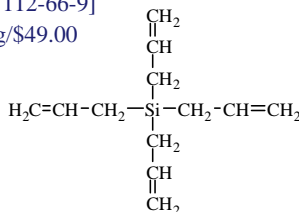


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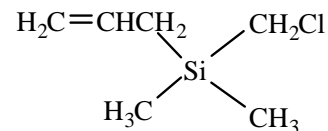
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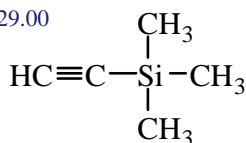
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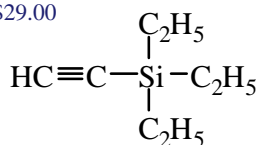
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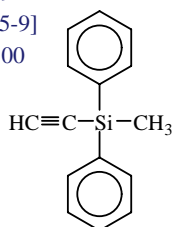
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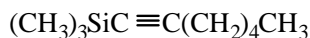
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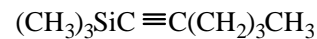
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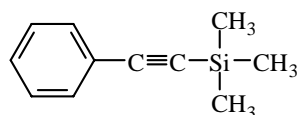
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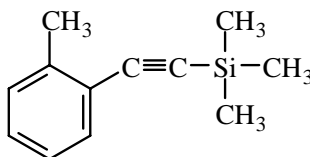
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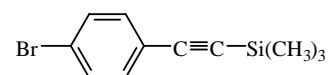
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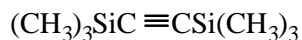
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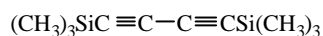
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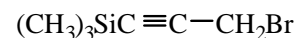
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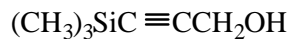


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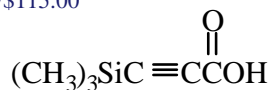


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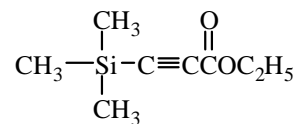
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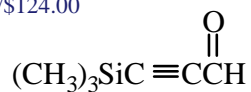
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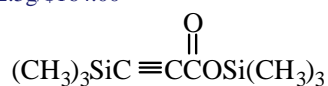
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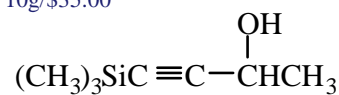
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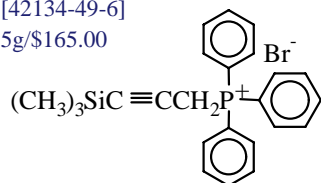
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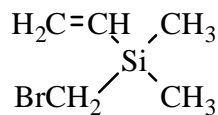
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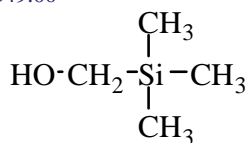


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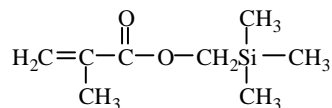


ORGANOFUNCTIONAL SILANES –

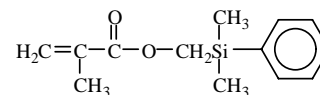
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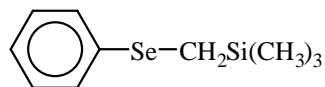
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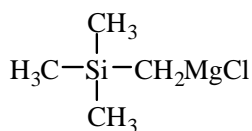
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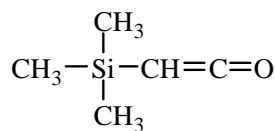
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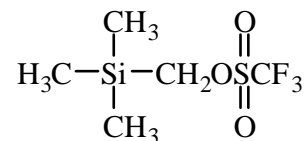
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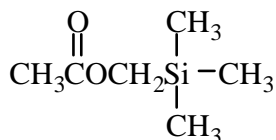
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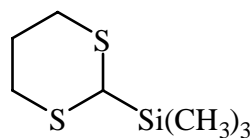
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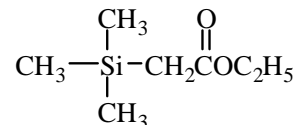
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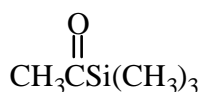
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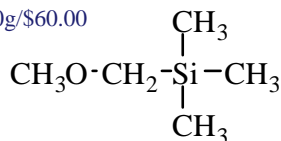
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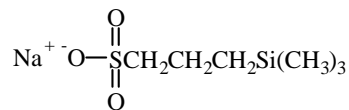


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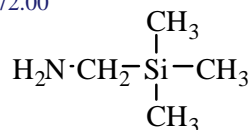


ORGANOFUNCTIONAL SILANES (cont.) –

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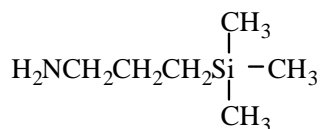
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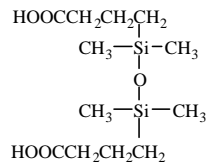
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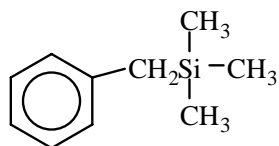


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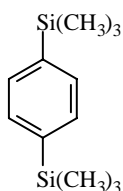


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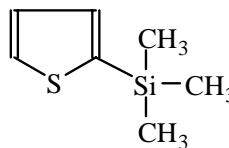
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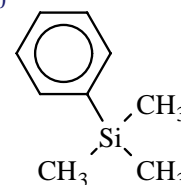
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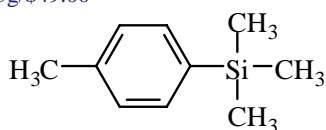
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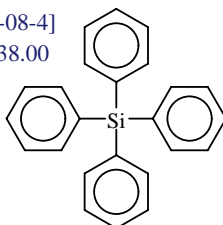
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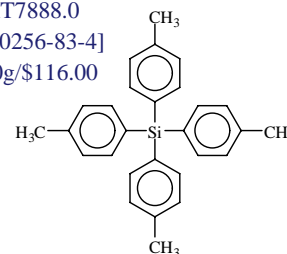
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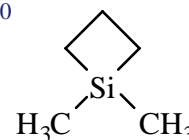
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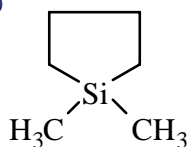
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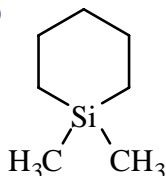
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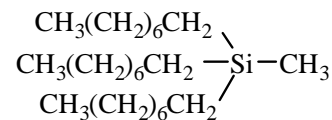
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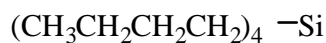
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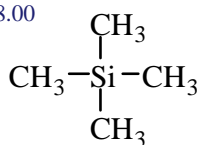
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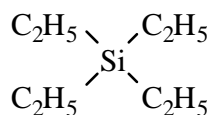
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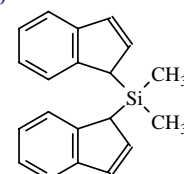
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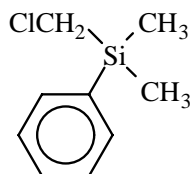


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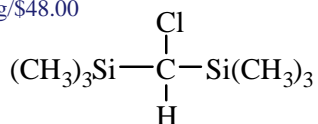


HALOFUNCTIONAL ORGANOSILANES –

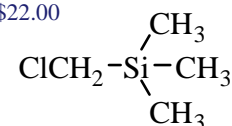
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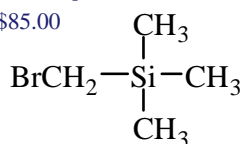
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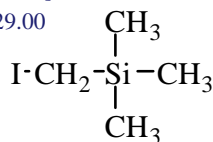
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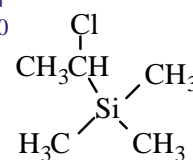
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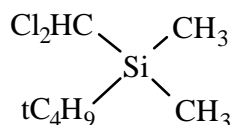
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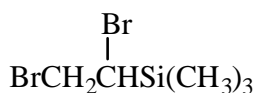
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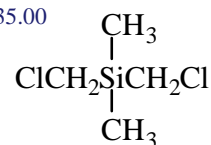
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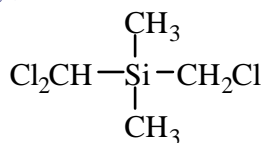
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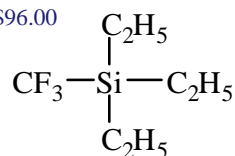
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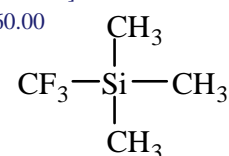
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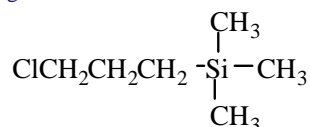
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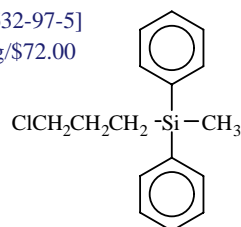
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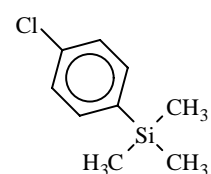
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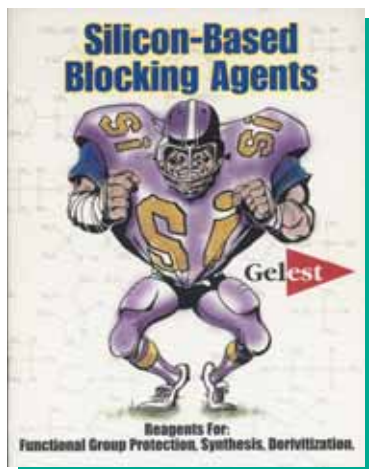
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Gelest Synthetic Chemistry Product Literature

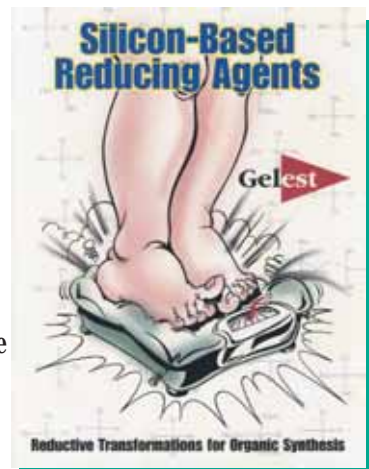
Silicon-Based Blocking Agents

These silicon reagents are used for functional group protection, synthesis and derivatization. The 28 page brochure presents detailed application information on silylation reagents for pharmaceutical synthesis and analysis. Detailed descriptions are presented on selectivity for reactions, resistance to chemical transformations and selective deblocking conditions. Over 300 references are provided.



Silicon Based Reducing Agents

These silicon-based reagents are employed in the reduction of various organic and inorganic systems. The 24 page brochure presents information complete with literature references for a variety of reductions using organosilanes.



Metal-Organics for Material & Polymer Technology

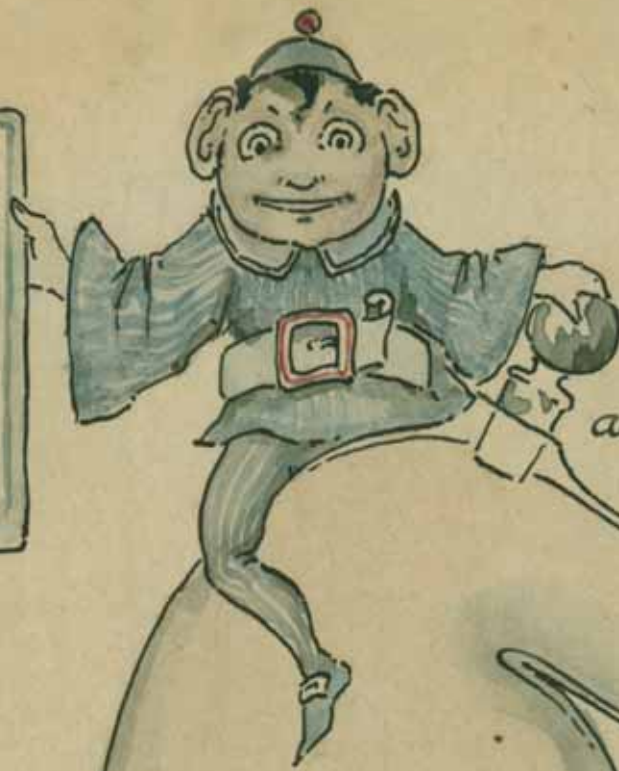
The latest Gelest catalog provides many new compounds with applications on optical, microelectronic, diagnostic and materials applications. Highly referenced listings and device applications are presented.



Silicon Compounds: Silanes & Silicones

Detailed chemical properties and reference articles for over 1500 compounds. The 560 page catalog of silane and silicone chemistry includes scholarly reviews as well as detailed application information.





This experiment was to distill over nitric acid from a mixture of sodium nitrate and sulphuric acid. 25 grams of sodium nitrate or (Chili salt petre.) and 15 grams of concentrated sulphuric acid, were put into a retort.

And arranged as in figure.

The receiver was kept constantly cool by cold water.

At first the retort was filled with a reddish brown gas then it became almost transparent, and towards the end of the experiment, when the mixture in the retort was almost dried up, the retort was filled with a very highly coloured brown gas.

After enough acid had been distilled, or rather when the sodium nitrate had become dry the contents of retort were crystallized from water.

The nitric acid obtained had a yellowish brown colour and appeared to be very strong as it gave off white fumes in contact with air.

