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IRVIN STEWART, Executive Secretary

729798

1943 Graybar Building
420 Lexington Avenue
New York, New York
October 23, 1942

R

Dr. Melvin Calvin
Department of Chemistry
University of California
Berkeley, California

Dear Dr. Calvin:

In Mr. Stevenson's letter of October 12 to Dr. Latimer, he pointed out that the deterioration of Salcomine may be taking place at one or more of the three stages of the operating cycle, i.e., absorption, desorption, or restoration. At present we still know very little as to the effect of any of these stages, although work is in progress which may give us some information on the effect of conditions during the restoration stage.

In a recent conversation in Mr. Stevenson's office, at which Dr. Diehl was present, Mr. Stevenson suggested that the presence of oxygen at temperatures around 100°C. during the desorption may be a factor in the deterioration. This condition prevails during desorption in almost all of the dry bed test units as now set up, regardless of the conditions of absorption. It was suggested that a compound capable of being desorbed against the atmosphere at ordinary temperatures might be less susceptible to deterioration, since here we would be taking off the oxygen under relatively mild conditions and furthermore there would be no absorption of oxygen during the period of restoration to the absorption stage of the cycle.

Some of your 1:1 Co:O_2 compounds might be of interest in this connection, since they are reported to desorb readily at atmospheric pressure after having been oxygenated under pressure. In particular, Dr. Diehl suggested that the compound di-(3-chlorosalicylal)dipropylenetriimine, which he has received from you and tested for rate of absorption, may be worth considering from this viewpoint. You will recall that he found fairly

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rapid absorption rates at 5°C., the amount of oxygen absorbed being a function of the oxygen pressure on the system. He feels that this compound could be made to absorb readily at temperatures below 0°C. at slightly elevated pressures.

Will you please consider the possibilities of utilizing the chloro compound or some similar type of compound in a system wherein absorption takes place at low temperature, possibly under pressure, and desorption occurs at ordinary temperatures? Do you feel that this sort of approach would lead the way to improvement in the life of the oxygen-carrying compounds? We will appreciate any comments you may have on this idea. Nothing much has been heard about this particular compound since you originally reported it to be active, and Diehl made the rate tests, and we do not want to overlook any possibilities of finding some means of overcoming the serious problem of deterioration of the oxygen-carrying chemicals.

Sincerely yours,

W. W. Beck
dsr

W. W. Beck
Technical Aide
Section B-7-b

WWB:dsr

cc: E. P. Stevenson
H. Diehl

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