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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cambridge
Massachusetts

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September 29, 1942

Professor Harvey Diehl
Iowa State College
Ames, Iowa

Dear Professor Diehl:

We have carried out calorimetric measurements of the heat of reaction for the various compounds you have sent us. You will recall that our previous measurements were made by charging the absorbent into a glass vessel and then applying oxygen pressure for a short period, the temperature rise being measured as well as the volume of oxygen obtained in desorption. This apparatus had the difficulty that the glass vessel was rather large and the time required for temperature equilibrium was rather long. For this reason the apparatus was modified and instead of the vessel a coil of 1/2" copper tubing is employed. With this modified apparatus the values have been redetermined and are tabulated in the following table.

Heat of Reaction

Parent Compound	19,600	cal./grams	mol	oxygen
3-methoxy	20,400	"	"	"	"
3-ethoxy	18,900	"	"	"	"
3-nitro	17,300	"	"	"	"

The value for the parent compound is in good agreement with those previously determined. The value for the methoxy compound is somewhat lower than was obtained in the previous experiment. I believe you will recall that for our previous experiment we stated that the results of successive determinations varied considerably. We are not certain what this variation was due to but it is absent in the new apparatus.

All of the values quoted above are for fairly high degrees of saturation. In other words, they are the average for the whole absorption curve.

Yours very truly,

E. R. Gilliland

E. R. Gilliland

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