

1930

Factors Influencing the Electrical Resistance of the Potato

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for Iron and Cobalt films (Phys. Rev. 30, 681 (1927); 35 292 (1930)). Films about 130 μ thick attain a magnetization of about 380 c. g. s. units in a field of 200 gauss, a value about equal to that for bulk nickel. As in Iron and Cobalt the coercive force is high, but the remanence is somewhat less than was found for iron and cobalt.

STATE UNIVERSITY OF IOWA,
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THE DISTRIBUTION OF POTENTIALS WITHIN A RAW POTATO UNDER CONSTANT APPLIED VOLTAGE

E. C. McCracken

Uniformly shaped sections of raw potatoes were placed between parallel plane electrodes and subjected to a constant potential. The potential drops existing between one electrode and various points in the potatoes were measured. The equi-potential surfaces were found to be planes parallel to the surface of the terminal electrodes. The potentials of these planes were found to vary with time and previous passage of current. The relative size of the probing electrodes used influenced the shape of the potential distribution curves.

IOWA STATE COLLEGE,
AMES, IOWA.

FACTORS INFLUENCING THE ELECTRICAL RESIST- ANCE OF THE POTATO

E. C. McCracken

Extensive experimentation upon the electrical resistance of raw potatoes has given the following results: (1) the resistance of a uniformly shaped section varies inversely as its cross-sectional area; (2) the resistance is independent of the applied voltage; (3) the resistance of sections taken from a relatively homogeneous part of the tuber varies directly with the length; (4) the cortical layer lengthwise of the potato has the least resistance, the resistances of internal medullary area, the external medullary area, and the outer skin following in the order named. No investigation

was made upon the resistance of the cortical layer transverse to the length of the tuber.

IOWA STATE COLLEGE,
AMES, IOWA.

THE EFFECT OF GAS-PRESSURE ON TESLA-LUMINESCENCE

G. M. WISSINK

In investigating the tesla-luminescence of cod-liver oil, it was observed that the nature of the luminescence would change very rapidly with the pressure. This effect was noticed for the cod-liver oil vapor, for carbon-dioxide and for air. In the case of air it was found that there was an abrupt change from a pinkish glow at about 4 mm. pressure to a bright orange at about 2 mm. The actual value of the pressure at which this effect took place has not as yet been accurately determined.

A preliminary spectroscopic study of the luminescence has shown that bands which are prominent at the higher pressure disappear at the lower.

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BURLINGTON, IOWA.

VELOCITY OF ULTRA-SONIC WAVES IN VAPOR

GEORGE E. THOMPSON

The velocity of sound waves having a frequency of 107,500 cycles per second has been measured in water vapor and in ether vapor. The waves are generated by a quartz crystal oscillator and velocities measured by an interference method similar to that used by Pierce.¹ The sound chamber is made air tight. After thorough exhaustion of the chamber with an air pump the vapor is introduced through a stop cock which connects the chamber with a glass bottle containing vapor. The sliding joint, through which the rod carrying the sound reflector passes, is made air tight by means of a rubber tube, which, by stretching and contracting, allows the reflector to be moved back and forth by a screw mounted outside the chamber.

The best value obtained for the velocity in water vapor is

¹ Proc. Am. Acad. 60, 271 (1925).