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HEAT CONSUMPTION METERS

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In heat consumption meters of the vaporizer type for measuring the heat consumption from heat exchanging members, tetraline—which means tetrahydronaphtaline ($C_{10}H_{12}$)—is ordinarily used as evaporating liquid, because the vapor-pressure-characteristic of tetraline has a form which nearly corresponds to the form of the heat-delivering-characteristic of the heat-exchanging members of the type commonly used for heating rooms.

Heat consumption meters in which tetraline is used as measuring liquid suffer from the drawback that, even if no heat is delivered to the heat-exchanging member, on which the meter is mounted, the meter would nevertheless record a certain heat consumption due to the fact that at ordinary room temperature, say 15 to 20° C, a relatively considerable amount of tetraline would evaporate. This causes an incorrectness of the result of measure, which incorrectness may amount to 25 to 50% of the recorded consumption and, therefore, is too large to be allowable, if on the different heat consumption meters in a heating plant the records should be relied upon as a base for the calculation of the share of the individual consumers in the total heat consumption.

The object of the present invention is to remedy the said drawback and a further drawback appearing when using tetraline as measuring liquid in heat consumption meters, viz. the further drawback that the result of the measure is incorrect for the reason that tetraline changes its properties in the course of time due to the influence of the air and—probably—also due to the influence of the heat, so that the speed of evaporation of the tetraline gradually decreases, as the interval of time, over which the recording is extended, increases. As a result of this instability of tetraline the consumption of a certain amount of heat would be recorded on the scale of the meter by a value, which is the smaller the later the said consumption takes place within the interval of time, over which the measurement is extended.

According to the invention normal, secondary octylic alcohol is used as evaporating liquid (measuring liquid) in heat consumption meters. Normal secondary octylic alcohol is a non-hygroscopic liquid, the evaporation of which at ordinary room temperature is a third part of the evaporation of tetraline under the same conditions or even less and, further, the said alcohol would not change its property in the course of time. On the other hand the form of the evaporating characteristic (vapor-pressure characteristic) of normal secondary octylic alcohol deviates more than the form of the evaporating characteristic of tetraline from the form of the heat-delivery characteristic of the heat-exchange members commonly used for heating rooms but the resulting incorrectness in the recording of the consumed heat due to the evaporation of the measuring liquid at ordinary room temperature in combination with the said deviation is considerably smaller when normal secondary octylic alcohol is used as measuring liquid instead of tetraline.

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