NEWS AND VIEWS

It was appropriate there should be storm. The carillonist unseen, the prodigal peal of bells radiating hollow darkness, overflowed the tower, crenellations and gargoyles, and splashed upon worn paving stones patterned with rain.

Safe within walls, we made our brave procession along the waiting body of the hall. A yeoman in uniform had overlooked one dead fly upon the marble stairs. Keeping to the ribbon of red carpet, assembled scientists mounted the dais, wise eyes averted from the frail wing pointing roofward where wooden angels, remembering the cold strokes of bells, remained unmoved by the impassioned speeches. the strange tongues absorbed into memorial walls.

Brackets of gaslight kindled solemn portraits; imponderable faces perched on mouldering mounds of robes. And we stared back, a congress gathered across centuries of old enemies who did not completely die, although immoderate weeds choked faint names on monuments; slowly, distant shrines crumble into desolation.

These stone walls accept a storm of bells. At the massive impact, sharp-edged ice of national landmarks shivers to the floor, eloquent debris hushed under smothering dust; boundaries between steep shoulders blur; men in dark suits disguise identities.

Incessant rain is indiscriminate. The tower shakes itself awake, and all the hardfaced gargoyles break in laughter at the recurring symbols. Again the arc is lifted up and rides from shallow rumbles to rushing gulf-rumbles of war become a flood to destroy all flesh. Each gaunt escarpment softens and falls down; and there is water over all the earth.

Yet sheltering together a few men renew the one unutterable language of the blood.

GRACE PERRY

Conference on “The Microcirculation as Related to Shock”

A conference on “The Microcirculation as Related to Shock,” sponsored by the National Academy of Sciences National Research Council and the Graduate School of Boston University, will be held at the Charles River Campus, Boston University, Boston, Massachusetts, March 29-April 1, 1967. Additional information can be obtained by writing to Dr. David Shepro, Boston University Biological Science Center, 2 Cummington Street, Boston, Massachusetts 02215.
Notification of Final Adoption of an International Method and Standard Solution for Hemoglobinometry Specifications for Preparation of Standard Solution

Introduction: The Assembly of Standardization Committees of the ICSH gave final approval to the proposal for the Cyanmethemoglobin Standard for Hemoglobinometry at their meeting in August, 1966. The Commission of Clinical Chemistry of the International Union of Pure and Applied Chemistry has given acceptance to the new molecular weight of hemoglobin based upon the structure of the hemoglobin molecule. Accordingly, the College of American Pathologists, who has been entrusted with the certification of a cyanmethemoglobin standard by the National Research Council, is able to announce that the criteria for the United States Cyanmethemoglobin Standard will change to the proposed International criteria effective January 1, 1967.

Although the ICSH has available an International Reference Standard, the proposal of the National Academy of Sciences National Research Council does not feel the necessity of an exchange of an International Reference Standard. The international agreement on the preparation of a standard solution and on the factor for conversion from absorbance of a cyanmethemoglobin solution to Cm. per 100 milliliters fully defines the International Standard.

The previously published proposal has been slightly modified for various reasons. The final criteria are outlined below.

A. Method and Definitions of Constants and the Standard

It is recommended that clinical laboratories should use the cyanmethemoglobin method of hemoglobinometry exclusively, the term "Cm. (of hemoglobin) per 100 ml. (of blood)" should be used to express the value of the measurement so determined.

Human hemoglobin is assumed to have a molecular weight of 64,458. This figure is based on the chemical structures of its alpha and beta chains and of heme. The iron content of hemoglobin as computed from this molecular weight and the atomic weight of iron, assuming four atoms of iron per molecule of hemoglobin, is 0.347 per cent (w/w).

The millimolar extinction coefficient of cyanmethemoglobin (hemoglobinicyanide, cyanferrihemoglobin) is taken to be 44.0 at 540 nm. The international hemoglobin standard is a solution of cyanmethemoglobin, whose absorbance (A) has been measured in a plane-parallel cuvette with an inner wall-to-wall distance of 1 cm. on a spectrophotometer which has been calibrated for wavelength and absorbance.

The concentration of the standard in milligrams per 100 milliliters is computed from the formula

$$ \frac{A \times 64,500}{44.0 \times 10} = 146.5 \times A $$

(The molecular weight is rounded off to three significant figures, the expected accuracy of spectrophotometry. The factor 10 in the denominator derives from the change from 1 liter to 100 ml.)

B. Recommendations for the Preparation of the Standard Solution

1. Strength: Because 1:251 (approximately 0.02 to 5 ml.) is the dilution used in most clinical laboratories, it will be convenient to have standards of the approximate content of 60 to 85 mg. per 100 ml. of solution, corresponding to a dilution of 1:251 of blood with a hemoglobin content of 15 to 22 Cm. per 100 ml.

2. Source of Hemoglobin: A hemolysate of washed human red cells is used. The method of preparation must assure the absence of red cell debris.

3. Conversion to Cyanmethemoglobin: An alkaline solution containing the necessary amount of $K_3Fe(CN)_6$ and KCN is used for conversion.

*The International Union of Pure and Applied Chemistry has recommended the concentration of a substance should be expressed in terms of moles per liter of millimoles per liter. Specifically, 1 mol hemoglobin (Fe) (relative molecular mass, $M_e = 64,458.4 = 16115$) contains 1 mol Fe$^2+$ ($M_e = 55.85$) and binds 1 mol O$_2$ ($M_e = 31.9988$; volume 22.41 at standard condition).
4. Absorption Measurements: Absorption is measured on a spectrophotometer calibrated by suitable independent wavelength and absorption checks. Cuvettes used should be plane-parallel with an inner wall-to-wall distance of 1.00 cm. (preferably 10.0 mm.).

5. Purity: Purity is checked by inspecting the shape of the absorption curve between 450 and 700 nm. so that it is consistent with a typical curve for pure cyanmethemoglobin standard. The ratio of extinction at 540 nm. to that at 504 nm. should be between 1.59 and 1.63. To check for turbidity, measurement in the near infrared (between 670 and 800 nm.) should give an optical density value of less than .002 per cm. light path.

6. Stability: Stability of the standard will be checked in the manufacturing and CAP Standards Laboratory by periodic examination as given in previous communications. Users will be informed by the manufacturer of any changes exceeding ±2 per cent of the stated value as determined by the 146.5 A at 540 nm.

7. Sterility: Sterility is not required if the spectral limits established for purity, turbidity, and stability are not exceeded. If the limits are exceeded, sterility will be checked by standard microbiological procedures.

8. Labeling: The label should list the producer of the standard, the expiration date, the concentration in milligrams per 100 milliliters as determined by the producer. The certifying seal of the College of American Pathologists will indicate that the specified content is within ±2 per cent of the stated value and that it agrees with ICSH specifications.

9. Glycerinated Standards: Glycerinated standards may be used, but should be clearly marked as requiring glycerinated blanks unless square cuvettes are used.

10. Maximum Storage Time: Standard solutions distributed from regional national laboratories should be used within 1 year from the date of production; however, the permissible storage period may be extended as additional experience and data are acquired.

REFERENCES


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