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Metric Time and Non-Metric Time: The Speed of Light
Conversion Factor 1.157407407 for Translating CODATA Fundamental Constants to a Metric System

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Extract

*In order to convert the CODATA physical and chemical fundamental constants from the **non-metric**, conventional time system of 24h-60m-60s, to a **metric** time system, one may employ a conversion factor of fractal **1.157407407** and multiples thereof. Selected conversions are presented in this essay as well as a discussion about the fundamental constants regarding the use of mixed systems of measurement [metric and non-metric] as in the speed of light value, **299792.458** kms/sec. This reflects a mixed expression inasmuch as [kilo]meters is a metric expression and a second of time is non-metric. The question is discussed regarding how can fundamental constants be considered to be exact when they are based on mixed measurement systems [non-metric and metric]. The metric expression for the speed of light in a vacuum is **259020.6837** kms/metric-second. The 1.157407407 conversion factor derives from the speed of light numerical values of both the metric and the non-metric systems.*

There exists an essential contradiction among many of the physical and chemical fundamental constants as registered by the CODATA. In many of the constants, as in the numerical value for the speed of light in a vacuum, the numerical expressions are the result of mixing metric [mass, distance] and non-metric [time] measurement systems. One must question how can exact numerical expressions of constants be derived from combining two

different measurement systems. It would be like multiplying oranges times apples.

Many of the CODATA numerical values are derived theoretically and not from actual measurement systems. Yet, where measurements are effected at times it would appear that the definition of the time-factor [i.e., the second of time] as in the speed of light is not fully comprehended. The possibility exists that by employing a metric system of measurement for both aspects [space and time], then different numerical values will derive and there may exist a more relational aspect to the physical and chemical constants than what has been discerned to date. When I speak of space and time separately, I am considering how mass and distance/meter [space] are measured as distinct from seconds [time].

By their admission, scientists point out the deficiency in having a non-metric time system of measurement, while employing the metric system for mass and distance. When one employs the 299792.458 numerical CODATA value for the speed of light in a vacuum, it does represent a given velocity of light for a specified time [conventional second]. So, the numerical value coming out of the constants have meaning, but one wonders whether by employing a metric system of time along with the metric system of space might produce numerical values of a more comprehensible and relational structure amongst the constants themselves.

The conventional 24-hour | 60-minute | 60-second time system employed today causes the speed of light to register a value of 299792.458 kilometers per second in the metric system for measuring distance. The 86400 seconds in which one rotational period of the Earth is divided by this 24-60-60 time system is essentially an arbitrary number, whose explanation is readily available as we compare the conventional time system to the theoretical metric time system.

The theoretical metric time system is generally proposed as consisting of 10-hours | 100-minutes | 100-seconds. There are variations, as I have discussed in a previous essay [www.earthmatrix.com]. By way of the 24-60-60 time system we know that during the time it takes the Earth to rotate on its axis in a 24-hour period [one Earth day], light has traveled 25902068370.0 kilometers. This is confirmed by the basic computation of multiplying the numbers of seconds in one day [86400] times the speed of light expressed in that time system [299792.458 kms/second].

86400 x 299792.458 = 25902068371.2

Now, given the fact that the rotation of the Earth is not exactly 24 hours, but rather 23-hours 56-minutes 4.1-seconds or, 0.99726968 of that amount, the actual distance would register as: **25831347440.0** give or take. One cannot help but notice that this value suggests the number of years often given for the Earth's precession of ca. **25800** years. Understandably one is relational to the other, i.e., the rotational period of the Earth is relational to its precession; obviously. For now, I shall work with the theoretically posited value of 259020.6837 kilometers for the metric-second.

The 299792.458, then, represents an arbitrary amount assigned to the speed of light. Naturally, that is its speed, light does travel 299792.458 kilometers in that one second of time as of the 24-60-60 time system/clock. But, one could derive other values by employing a distinct time system/clock, as say with the metric time system/clock. Within the metric time-keeping system the speed of light would be 259020.6837 kilometers per metric-second. This obtains because based on the 10-100-100 time system/clock, the rotational period of the Earth is divided into 100000 sectors [divisions or seconds]. Each one of those sectors, then translates into 259020.6837 kilometers for the speed of light.

In this sense, then, the speed of light registered on the 24-60-60 time system/clock is actually representing that light travels 299792.458 kilometers per a 24-60-60 time system/clock, or 1.157407407 times greater than the 259020.6837 metric second value. On a metric time system, then, the unit one [1.0] is defined as of the rotational period of the Earth. Whereas with the 24-60-60 time system a rotational period of the Earth of 1.157407407 is taken as the baseline. This particular baseline makes little sense from the point of view of unit 1.0 analyses. Rather it is the concept of one second as defined by the conventional system [its 24-60-60 relationship] that is defining the second and hence the distance used in the measurement.

The choice of defining the speed of light as of the 1.157407407th rotational period of Earth has no scientific basis as such. Its basis is the historical arbitrariness of the 24-60-60 system; meaning having divided the Earth's rotation into 86400 random-like sectors [seconds].

[kilo]meter/second expression in the non-metric time system reflects a mixed expression. For [kilo]meters reflects a metric expression and the second of time expressed there is non-metric. I have discussed how fundamental constants may be exact even when they are based on mixed spatial/temporal measurement systems [non-metric and metric]. Even though the 299792.458 kms/sec expression reflects a mixed measurement system, the numerical expression does reflect an actual velocity of light for that given temporal unit. The question, as illustrated in this essay, is to comprehend the nature of the time unit [24h-60m-60s] with regard to a metric temporal unit [10-100-100]. Both time systems of measurement reflect specific distances that light travels in a given temporal framework in relation to the rotational period of the Earth on its axis.

The metric expression for the speed of light in a vacuum is **259020.6837** kms/metric-second. The 1.157407407 conversion factor derives from the speed of light numerical values of both the metric and the non-metric systems.

299792.458 / 259020.6837 = **1.157407407** *conversion factor for non-metric and metric time systems of measurement*

In order to convert the conventional 24-60-60 time system/clock to the metric 10-100-100 time system/clock, for certain constants, one would divide the CODATA numerical value of the physical and chemical constants by a factor of **1.157407407** or **1.339591908,** depending upon whether the c term in the formula is squared or not.

The next step in our research would be relating the time-determined fundamental constants to the other fundamental physical and chemical constants that are spatial-determined without an apparent temporal aspect in their units of measurement.

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