MODELO CONCEPTUAL
BASE DE DATOS DE VENTRUEPE

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2 Introducción

Se pretende realizar un modelo conceptual de una base de datos propios del funcionamiento de la administracin y servicios que le presta al cliente la megatienda de muebles VenTruePe. Para este objetivo utilizaremos el modelo de datos Entidad-Relación Extendido como base para el esquema que ilustrará el resultado final. Además presentaremos un diccionario de datos que tendrá reflefado todas las entidades del esquema con su semántica, dominnio, atributos y semántica de los atributos además de las relaciones y su semántica.

Esperamos que el modelo conceptual resultante cumpla, en la medida de lo posible, con las condiciones de de correctitud, completitud, minimalidad, expresividad, legibilidad, extensibilidad y autoexplicatividad, que caracterizan un modelado conceptual de calidad.

3 Contenido

3.1 Planteamiento del Problema

Realizar un modelo conceptual que sirva a la mega-tienda de muebles VenTruePe, que le ayude a tener una mejor organización y resolver los siguientes problemas:

- Organizar y llevar control riguroso de las compras que realiza la mega-tienda a sus proveedores.
- Controlar eficientemente el manejo de los recursos humanos de la empresa, todo lo relacionado los empleados, sus pólizas de seguro y las de sus dependientes.
- Manejar un registro de las ventas, trueques y pedidos que realiza la mega-tienda.

Como objetivo nos planteamos la creación de un esquema conceptual de bases de datos que satisfaga las necesidades de la empresa, que sea de calidad y que, además sea eficiente.

3.2 Fundamentos teóricos

Usaremos el modelo de datos Entidad-Relación extendido para resolver los problemas de la mega-tienda. Esta estructura nos servirá para el análisis y la creación del esquema del modelo solicitado por la empresa.
Se usará, para la realización del esquema la herramienta de diagramación Dia.

3.3 Solución del problema

Stoichiometry The relationship between the relative quantities of substances taking part in a reaction or forming a compound, typically a ratio of whole integers.

Atomic mass The mass of an atom of a chemical element expressed in atomic mass units. It is approximately equivalent to the number of protons and neutrons in the atom (the mass number) or to the average number allowing for the relative abundances of different isotopes.

4 Experimental Data

Mass of empty crucible	7.28 g
Mass of crucible and magnesium before heating	8.59 g
Mass of crucible and magnesium oxide after heating	9.46 g
Balance used	#4
Magnesium from sample bottle	#1

5 Sample Calculation

Mass of magnesium metal	= 8.59 g - 7.28 g
	= 1.31 g
Mass of magnesium oxide	= 9.46 g - 7.28 g
	= 2.18 g
Mass of oxygen	= 2.18 g - 1.31 g
	= 0.87 g

Because of this reaction, the required ratio is the atomic weight of magnesium: 16.00 g of oxygen as experimental mass of Mg: experimental mass of oxygen or $\frac{x}{1.31} = \frac{16}{0.87}$ from which, $M_{\mathrm{Mg}} = 16.00 \times \frac{1.31}{0.87} = 24.1 = 24\,\mathrm{g\,mol^{-1}}$ (to two significant figures).

6 Results and Conclusions

The atomic weight of magnesium is concluded to be $24\,\mathrm{g\,mol^{-1}}$, as determined by the stoichiometry of its chemical combination with oxygen. This result is in agreement with the accepted value.

Figure 1: Figure caption.

7 Discussion of Experimental Uncertainty

The accepted value (periodic table) is $24.3\,\mathrm{g\,mol^{-1}}$ **?**. The percentage discrepancy between the accepted value and the result obtained here is 1.3%. Because only a single measurement was made, it is not possible to calculate an estimated standard deviation.

The most obvious source of experimental uncertainty is the limited precision of the balance. Other potential sources of experimental uncertainty are: the reaction might not be complete; if not enough time was allowed for total oxidation, less than complete oxidation of the magnesium might have, in part, reacted with nitrogen in the air (incorrect reaction); the magnesium oxide might have absorbed water from the air, and thus weigh "too much." Because the result obtained is close to the accepted value it is possible that some of these experimental uncertainties have fortuitously cancelled one another.

8 Answers to Definitions

a. The *atomic weight of an element* is the relative weight of one of its atoms compared to C-12 with a weight of 12.0000000. . ., hydrogen with a weight

of 1.008, to oxygen with a weight of 16.00. Atomic weight is also the average weight of all the atoms of that element as they occur in nature.

b. The *units of atomic weight* are two-fold, with an identical numerical value. They are g/mole of atoms (or just g/mol) or amu/atom.

c. *Percentage discrepancy* between an accepted (literature) value and an experimental value is

$$\frac{\text{experimental result} - \text{accepted result}}{\text{accepted result}}$$