



**GHS in Mexico**  
**NOM-018-STPS-2015 – What can we expect?**  
**Society for Chemical Hazard Communication**  
**Spring 2016 Meeting**  
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# Mexico



Since the 2011 publication of the voluntary GHS standard, **NMX-R-019-SCFI-2011**, the **2011 authorization** of an alternate GHS Safety Data Sheet, and the **2014 authorization of an alternate GHS chemical identification and classification** under **NOM-018-STPS-2003**, the chemical industry has awaited the promulgation of a mandatory workplace GHS standard in Mexico. The speculation was that any mandatory standard would be enacted in the same manner as the Brazilian implementation, under the mandates of an existing workplace standard.

We will discuss the recent update to **NOM-018-STPS-2015**, *The Harmonized System for the Identification and Communication of Hazard and Risks from Hazardous Chemicals in the Workplace*, and other relevant regulations that influence the Hazard Communication infrastructure in Mexico.

# Mexico



- Mexican Regulatory Standards
  - **NOM, NMX, and PROY**
- Workplace Standards
  - **NOM-010-STPS-2014** (second revision) – Occupational Exposure Limits – becomes effective on **April 28, 2016**.
  - **NOM-018-STPS-2000** – Workplace Hazardous Chemical Substances Communication and Identification Standard
  - **NOM-028-STPS-2012** – Work-Safety Management System for Processes and Critical Equipment Handling Hazardous Chemical Substances.
    - Workplace Threshold Quantities of Hazardous Chemicals
  - **NOM-047-SSA1-2011** – Workplace Biological Exposure Indices (BEIs) to Chemical Substances

# Mexico



- Transportation Standards
  - **NOM-002-SCT-2011** – List of Dangerous Materials and Substances Commonly Carried in Transport – **Last update**
  - **NOM-003-SCT-2008** – Labelling Requirements for Containers and Packaging of Dangerous Substances, Materials, and Residuals – Harmonized under GHS
  - **NOM-004-SCT-2008** – Unit Identification System for Ground Transport of Dangerous Materials and Residuals – Harmonized under GHS
  - **NOM-005-SCT-2008** – Emergency Transport Information for Ground Transport of Dangerous Materials and Residuals – Harmonized under GHS



# Mexico



- New Hazard Communication Standards
  - GHS Standard - **NMX-R-019-SCFI-2011** – Harmonized Classification System and Hazard Communication of Dangerous Chemicals
  - GHS Formatted **SDS Authorization**
  - **Mexican National Chemical Inventory** - Commission for Environmental Cooperation of North America



# Mexico – Understanding Standards



- *Norma Oficial Mexicana* – **NOM**

- These standards are mandatory under the scope of the standard or when an activity or product is developed under a NOM. These standards are normally published in the Official Federal Journal. <http://dof.gob.mx/index.php>

- Examples:

- **NOM-018-STPS-2000** or **NOM-026-STPS-2008**

- *Norma Mexicana* – **NMX**

- These standards are not mandatory under the scope of the standard or when an activity or product is developed under a NMX. However, a NMX can become mandatory if they are referred under a NOM. Published in the Official Federal Journal.

- Examples:

- **NMX-J-169-ANCE** or **NMX-A-038/1-INNTEX-2011**



# Mexico – Understanding Standards



- Proyecto – **PROY**
  - These standards are drafts and are not official until all updates and revisions are completed.
  - Example:
    - **PROY-NMX-R-019-SCFI-2010**





**M e x i c o**



**NOM-018-STPS-2015**

***THE HARMONIZED SYSTEM FOR THE  
IDENTIFICATION AND COMMUNICATION OF  
HAZARDS AND RISKS FROM HAZARDOUS  
CHEMICALS IN THE WORKPLACE***



# Mexico - NOM-018-STPS-2015



- **THIRD** shall be deemed fulfilled the provisions of **Chapter 7, system identification, and Chapter 8, System training and communication**, of this standard, in workplaces that use
  - NMX-R-019-SCFI-2011, Harmonized System of Classification and Hazard Communication of Chemicals, or
  - Any later version or equal to the third revised edition 2009, the Purple Book of United Nations, the Globally Harmonized System of Classification and Labelling of Chemicals, GHS for its acronym in English.
- Harmonizes the information on the hazards of chemical substances and mixtures to GHS.
  - The content of safety data sheets, and
  - Signaling elements that apply in the labor sector.

# Mexico - NOM-018-STPS-2015



- Establish requirements for:
  - **Harmonized system of identification and communication of hazards and risks from hazardous chemicals in the workplace**
- To prevent hazards to:
  - Workers and emergency personnel



## The Mexican Official Standard:

- Applies throughout the country, and,
- Applies to all workplaces

Where hazardous chemicals are handled

# Mexico



- This NOM does not apply to the following finished products:
  - Pharmaceutical, food additives, cosmetic articles, pesticide residual in food, and hazardous waste.
  - It also does not apply to cleaning products sold in supermarkets, as well as, caustic soda or hydrochloric acid for cleaning, nor paints or insecticides for home use, although, for these, COFEPRIS (the national sanitary agency) does require use of the GHS labels.

# Mexico - NOM-018-STPS-2015



- Mexican regulatory experts believe that the Chapter 2 requirement exception is directed to **CANIPEC** (The Chamber and Association of the Industry of Personal Care and Home Care) for personal care products that may have a risk category.
- **CANIPEC** seeks to implement another model of labeling for Latin America under the **CASIC** (The Latin-American Industry Council for Cosmetics, Personal Care and Home Care) initiative.



# Mexico - NOM-018-STPS-2015



- There is a **3-year** implementation transition period. This NOM will become effective in **October 9, 2015**.
- During the transition period, manufacturers and/or importers can still use **NOM-018-STPS-2000** and its **2014** update.
- Once the NOM becomes effective in **2018**, the **2000** version will be repealed along with the **2003** and **2014** updates.
- The NOM does not mention repealing **NMX-R-019-SCFI-2011**, which is the current voluntary GHS Standard. According to STPS including the voluntary standard in the NOM does not make the NMX mandatory!!

# Mexico - NOM-018-STPS-2015



- A black border pictogram, when used internally in the workplace, along with the black symbol and white background, can substitute for the red border pictogram.
- Workplace labels and SDSs should include the classification of hazardous substances and mixtures, according to the established criteria in NMX-R-019-SCFI-2011 or its subsequent replacement or any later version of the third revision of the UN GHS Purple Book. This requirement ONLY applies for the workplace. Once the hazardous substance leaves the workplace it needs the required label by industry sector. For example: **NOM-051-SCFI-2010** covers the *General Labelling Requirements of Food Products*; **NOM-189-SSA-SCFI-2002** *Labelling and Packaging of Vegetable Nutrient and Pesticide Products*; **NOM-003-SSA1-2006** *Hazard Communication and Labelling for Paints and Coatings*.



# M e x i c o - N O M - 0 1 8 - S T P S - 2 0 1 5



- Workplace labelling cannot omit hazards and hazard categories.
- Product labels are currently not regulated as the Secretariat of Health is in the process of promulgating a product label standard. However, diverse industry sectors have their own label standard and to import products into Mexico there is a commercial label requirement.





# Mexico - NOM-018-STPS-2015



- There are five Appendices:
  - A – Health and Physical Hazard Communication Elements
  - B – Health and Physical Hazard Pictograms
  - C – Health and Physical Hazards, Hazard Statements, H Phrases
  - D - Health and Physical Hazards, Precautionary Statements, P Phrases
  - E – SDS Authoring Instructions
  - Guide I – (Not Mandatory) PPE Letters and Symbols
  - Guide II – (Not Mandatory) Training Questioner

# Mexico - NOM-018-STPS-2015



Tabla 1

Valores límite de composición en la mezcla para cada clase de peligro para la salud

| Clase de peligro para la salud                               | Cantidad de la sustancia que compone la mezcla (%) |
|--|--|
| Toxicidad aguda  | $\geq 1.0$   |
| Corrosión/irritación cutánea                                 | $\geq 1.0$   |
| Lesiones oculares graves/irritación de los ojos              | $\geq 1.0$   |
| Sensibilización respiratoria/cutánea                         | $\geq 1.0$   |
| Mutagenicidad: Categoría 1                                   | $\geq 0.1$   |
| Mutagenicidad: Categoría 2                                   | $\geq 1.0$   |
| Carcinogenicidad   | $\geq 0.1$   |
| Toxicidad para la reproducción                               | $\geq 0.1$   |
| Toxicidad específica de órganos blanco (exposición única)    | $\geq 1.0$   |
| Toxicidad específica de órganos blanco (exposición repetida) | $\geq 1.0$   |

**Mixture  
Composition  
Cut-Off Limit  
Values For  
Each Class of  
Health  
Hazard**

# Mexico - NOM-018-STPS-2015



## Apéndice A

### Elementos de comunicación de peligros físicos y para la salud

**A.1** Se deberán incluir en la señalización y en la hoja de datos de seguridad los elementos de la comunicación por tipo de peligro referenciados a la división o categoría de la clasificación de las sustancias químicas peligrosas o mezclas establecidos en el presente Apéndice.

Los elementos de la comunicación son: el símbolo, la palabra de advertencia y la indicación de peligro.

**A.2** Los elementos para la comunicación se presentan en dos apartados:

- a) Peligros físicos, y
- b) Peligros para la salud.

#### A.2.1 Peligros físicos

- a) Explosivos.

Tabla A.1.1

| Elementos                     | División de peligro   |                  |                  |                  |  |                                   |                                   |
|-------------------------------|-----------------------|------------------|------------------|------------------|--|-----------------------------------|-----------------------------------|
|                               | Explosivos inestables | División 1.1     | División 1.2     | División 1.3     | División 1.4   | División 1.5                      | División 1.6                      |
| <b>Símbolo</b>                | Bomba explotando      | Bomba explotando | Bomba explotando | Bomba explotando | Bomba explotando<br>o<br>Cifra 1.4* sobre fondo anaranjado | Cifra 1.5* sobre fondo anaranjado | Cifra 1.6* sobre fondo anaranjado |
| <b>Palabra de advertencia</b> | Peligro               | Peligro          | Peligro          | Peligro          | Atención   | Peligro                           | Sin palabra de advertencia        |

## Appendix A – Health and Physical Hazard Communication Elements



## Appendix B – Health and Physical Hazard Pictograms













|   |   |   |
|---|---|---|
| Llama   | Llama sobre círculo   | Bombas explotando   |
|    |    |    |
| Corrosión   | Botella de gas  | Calavera y huesos cruzados  |
|    |    |    |
| Signos de exclamation   | Medio ambiente  | Peligro para la salud   |
|  |  |  |

Tabla B.3  
Pictograma de Peligros Físicos y para la Salud

| Pictogramas de Peligros Físicos  |  |  |
|--|--|--|
|  |  |  |
|  | <ul style="list-style-type: none"> <li>• Gases Inflamables (categoría 1)</li> </ul>  |  |



# Mexico - NOM-018-STPS-2015



|      |   |                   |                     |
|------|---|-------------------|---------------------|
| H200 | Explosivo inestable   | Explosivos        | Explosivo inestable |
| H201 | Explosivo; peligro de explosión en masa                           | Explosivos        | División 1.1        |
| H202 | Explosivo; grave peligro de proyección                            | Explosivos        | División 1.2        |
| H203 | Explosivo; peligro de incendio, de onda expansiva o de proyección | Explosivos        | División 1.3        |
| H204 | Peligro de incendio o de proyección                               | Explosivos        | División 1.4        |
| H205 | Peligro de explosión en masa en caso de incendio                  | Explosivos        | División 1.5        |
| H220 | Gas extremadamente inflamable                                     | Gases inflamables | 1                   |
| H221 | Gas inflamable  | Gases inflamables | 2                   |

## Appendix C – Health and Physical Hazards, H Phrases



## Códigos de identificación P y sus Consejos de prudencia

### Consejos de Prudencia Generales

| Código | Consejo de prudencia   |
|--------|--|
| P101   | Si se necesita consultar a un médico: tener a la mano el recipiente o la etiqueta del producto |
| P102   | Mantener fuera del alcance de los niños  |
| P103   | Leer la etiqueta antes del uso   |

## Appendix D – Health and Physical Hazards, P Phrases



## Apéndice E

### Instrucciones para la elaboración de hojas de datos de seguridad (HDS)

#### E.1 Indicaciones generales para preparar una hoja de datos de seguridad, HDS

La información de la hoja de datos de seguridad, HDS, deberá:

- a) Estar en idioma español;
- b) Ser clara y concisa;
- c) Usar la simbología, acrónimos y abreviaturas, referidos en el Capítulo 5, de la presente Norma;
- d) Ser requisitada en su totalidad. En caso de no contar con ciertas propiedades o sea técnicamente imposible facilitarla, especificarla claramente en cada sección;
- e) Contar con la fecha y número de emisión de la hoja de datos de seguridad, HDS, en su caso y la fecha de la revisión, así como la indicación sobre la versión que se sustituye;
- f) Evitar el uso de expresiones vagas y equívocas;
- g) Evitar utilizar frases como "puede ser peligroso", "sin efectos sobre la salud", "seguro en casi todas las condiciones de uso", o "inocuo";
- h) Estar numerada en todas sus páginas, indicando el número total de páginas que la integran. Por ejemplo: "Página uno de tres" o "Página 1/3", e
- i) Indicar en cada página el nombre de la sustancia o mezcla.

# Mexico - NOM-018-STPS-2015



## Guía I (No Normativa)

### Símbolos y letras del equipo de protección personal

El contenido de esta guía es un complemento para la mejor comprensión de la Norma **y no es de cumplimiento obligatorio**.

I.1 La presente guía contiene ejemplos símbolos y letras que pueden ser usados en el caso del equipo de protección personal:

a) Símbolos



Guide I –  
(Not  
Compulsory)  
PPE Letters  
and Symbols



# Mexico - NOM-018-STPS-2015



Para la Letra:

Utilice el equipo:

**A**



**B**



**C**



**D**



**E**



**F**



Guide I – (Not Compulsory)  
PPE Letters and Symbols



# Mexico - NOM-018-STPS-2015



## GUÍA II (No Normativa)

### Cuestionario para la entrevista

El contenido de esta guía es un complemento para la mejor comprensión de la Norma **y no es de cumplimiento obligatorio.**

II.1 La presente guía contiene ejemplos de preguntas que pueden ser usadas para la entrevista a los trabajadores:

| Pregunta   |
|--|
| ¿Ha recibido la capacitación y adiestramiento para conocer e interpretar las hojas de datos de seguridad de las sustancias químicas peligrosas o mezclas manejadas en su centro de trabajo?<br>En caso afirmativo, mencionar de cuáles sustancias. |
| ¿Ha recibido la capacitación y adiestramiento para conocer la señalización de las sustancias químicas peligrosas o mezclas manejadas en su centro de trabajo?<br>En caso afirmativo, mencionar de cuáles sustancias.                               |
| ¿Mencione qué entiende por peligro?  |
| ¿Mencione qué entiende por riesgo?   |
| ¿Mencione qué entiende por señalización?   |
| ¿Mencione qué entiende por etiqueta?   |

Guide I –  
(Not  
Compulsory)  
Training  
Questioner



## NOM-018-STPS-2015 – Industry Questions



- **Question:** Each country has issued a different label of hazardous chemicals under GHS. Some countries use it only for workplace product labeling and others for the labeling of hazardous chemical products for the consumers and the general public. How will labeling apply in Mexico?
- **STPS Answer:** STPS does not have jurisdiction over the labelling of hazardous chemical products for the consumer or the general public. The Secretariat of Economy, Health, or Environment have powers over product labelling. For example: **NOM-051-SCFI-2010** covers the *General Labelling Requirements of Food Products*; **NOM-189-SSA-SCFI-2002** *Labelling and Packaging of Vegetable Nutrient and Pesticide Products*; **NOM-003-SSA1-2006** *Hazard Communication and Labelling for Paints and Coatings*. For STPS workplace labelling is implemented through marking of chemical substances or mixtures existing in the workplace. The word markings is a term that remain synonymous with labeling in the workplace.






## NOM-018-STPS-2015 – Industry Questions



- **Question:** In the scope of **NOM-018-STPS-2000**, there is a reference to “does not apply to finished products ready for the market place.” This exception does not appear on **NOM-018-STPS-2015**. How should the industry interpret this change?
- **STPS Answer:** On **NOM-018-STPS-2015** you will find the same exception you will find in the GHS purple book, as follows:
  - This NOM does not apply to the following finished products:
    - Pharmaceutical, food additives, cosmetic articles, pesticide residual in food, and hazardous waste.
    - It also does not apply to cleaning products sold in supermarkets, as well as, caustic soda or hydrochloric acid for cleaning, nor paints or insecticides for home use, although, for these, COFEPRIS (the national sanitary agency) does require use of the GHS labels.

## NOM-018-STPS-2015 – Industry Questions



- **Question:** In the Scope of **NOM-018-STPS-2015** it indicates that finished products do not apply to pharmaceuticals, food additives, etc., allegedly, because these products hazard communication is according to specific NOMs. However, the painting industry also has its own hazard communication NOM for labeling of health hazards (**NOM-003-SSA1-2006**). This NOM uses the same exclamation mark pictogram  that according to section 10.6 of **NOM-018-STPS-2015**, it cannot be used with  or  pictograms. However, **NOM-003-SSA1-2006** mandates that every paint product, whether it is for professional use or direct sales to the public, have a sanitary label and a exclamation mark pictogram regardless of the classification hazard. This generates conflicts in the compliance with both NOMs, for paint product labelling and contradictions for the person reading the label. How is this conflict resolved?
- **STPS Answer:** The Secretariat of Health does not have any literature or bibliographic references of having used or consulted GHS for the development of the aforementioned NOM for the labeling of paint products. This is why one cannot say that this NOM is consistent with GHS. It is worth mentioning that as a country, Mexico has not officially ruled on the adoption and implementation of the GHS.

## NOM-018-STPS-2015 – Industry Questions



- **Question:** Where are the restrictions contained in Section 10.6 of **NOM-018-STPS-2015**? From the Purple Book? What revision?
- **STPS Answer:** Please referenced **NMX-R-019-SCFI-2011** Harmonized Classification System and Hazard Communication of Dangerous Chemicals, as follows:
  - 7.3.7 Multiple hazards and Prioritized Information - Prioritization of pictograms for physical hazards should follow the rules set in the transport regulation. With regard to the workplace, the competent authority may require all symbols for physical hazards to be used. For Health Hazards the following priority criteria should apply:
    - a. When the skull and crossbones pictogram appears on the label, the exclamation mark pictogram should not appear,
    - b. When skin or eye irritation pictograms should not appear in the label, if the corrosion pictogram is in the label,
    - c. If the health hazard pictogram appears to indicate respiratory sensitization hazard, the exclamation mark pictogram should not appear when used for skin sensitization or skin or eye irritation.
  - In the 2007 and 2009 GHS revisions, paragraph 1.4.10.5.3, and the fifth revision of 2013, paragraph 1.4.10.5.3.1 one can find pictogram priority order.



## NOM-018-STPS-2015 – Industry Questions



- **Question:** What is the financial and time cost STPS calculated for the regulatory impact on the adopting GHS for the development of SDSs and Labels for hazardous chemicals?
- **STPS Answer:** STPS will need to review the Regulatory Impact Statement to provide an answer.



## NOM-018-STPS-2015 – Industry Questions



- **Question:** How often must companies update the SDSs? Or, how often must companies review the SDSs?
- **STPS Answer:** NOM-018-STPS-2015, paragraph 9.3 states:
  - 9.3 – The SDS for each hazardous chemical and/or mixture should be updated when:
    - a) New information is obtained that modifies the classification of hazardous chemical substances or mixtures, in accordance with the provisions of GHS resulting in changes to safety measures, and,
    - b) New data or test results are published on potential adverse effects of chronic health, even if the data does not involve a modification of the existing classification.





## NOM-018-STPS-2015 – Industry Questions



- **Question:** Should companies notified STPS if there are updates and modifications to the SDS?
- **STPS Answer:** STPS inspectors are responsible to make sure the documents are in compliance with the NOM, and they will review all SDSs.



## NOM-018-STPS-2015 – Industry Questions



- **Question:** The NOM does not indicate the SDS distribution requirement for companies?
- **STPS Answer:** Paragraph 6.8 of the same states that SDSs of marketed products need to be provided to customers, and Section 1 of the SDS outline requires the identification of manufacturers and/or distributors.



## NOM-018-STPS-2015 – Industry Questions



- **Question:** Is there an expiration requirement in the SDS?
- **STPS Answer:** It is not established by the NOM



## NOM-018-STPS-2015 – Industry Questions



- **Question:** What other languages are permitted in the authoring of SDSs under this NOM?
- **STPS Answer:** Section 9 of **NOM-018-STPS-2015** outlines that all SDSs be author in Spanish.



## NOM-018-STPS-2015 – Industry Questions



- **Question:** Are H & P phrases and precautionary statements required in Section 2 of the SDS?
- **STPS Answer:** Yes



## NOM-018-STPS-2015 – Industry Questions



- **Question:** Is 100% of the composition required in Section 3 of the SDS? Are concentration ranges required in Section 3 of the SDS?
- **STPS Answer:** Under Section 3 of the standard it states:
  - The text of standard establishes:
    - Substances – Stabilizing additives and impurities that contribute to the substance classification.
    - Mixtures – the concentration or concentration range of the hazardous components
  - The SDS Guide requires:
    - Substances – Stabilizing additives and impurities that contribute to the substance classification.
    - Mixtures – The components of the hazardous substance of the mixture must be reported in concentration or concentration range in mass or volume.
      - When a concentration range is provided, the reporting health hazards must be of the highest composition of each hazardous substance of the mixture as long as the risk of the mixture as whole is known



## NOM-018-STPS-2015 – Industry Questions



- **Question:** Is it mandatory to include in Section 8 of the SDS the OELs of NOM-010 of 2014 that will become effective on April 28, 2016, ?
- **STPS Answer:** Yes



## NOM-018-STPS-2015 – Industry Questions



- **Question:** Is it allowed to add subtitles in the different sections of the SDS?
- **STPS Answer:** Yes, as long as the titles and content of each section is maintained as originally formatted, and if the subtitles help to clarify and provide additional information.





## NOM-018-STPS-2015 – Industry Questions



- **Question:** Is there any country specific regulatory information required to be included in Section 15 of the SDS?
- **STPS Answer:** The NOM requires specific EHS regulatory information of dispositions of hazardous substances and mixtures used when applicable, such as:
  - **NOM-010-STPS-2014** - OELs
  - **NOM-028-STPS-2012** - Hazardous Substances in the Workplace
  - **NOM-047-SSA1-2011** - BEIs
  - **NOM-002-SCT-2011** - List of Substances Mostly Commonly Transported
  - **NOM-002-STPS-2010** - Workplace Fire Safety
  - **NOM-005-STPS-1998** - Safe Storage of Hazardous Substances in the Workplace



# M e x i c o Relevant Regulations



- **April 2014** – Update to **NOM-010-STPS-1999** changing the official NORM designation to **NOM-010-STPS-2014**
  - Updates the hazard and risk management of hazardous chemicals
  - The number of OEL substances listed in Appendix I increased from 561 to 764
    - The OEL values of 357 substances were not changed
    - The OEL values of 181 substances were updated in accordance with international references, and
    - 226 substances were added



# Mexico Relevant Regulations



- **June 2012** – Biological Exposure Index **NOM-047-SSA1-2011**
  - The Health Secretariat of Mexico under the Federal Commission for the Protection Against Health Risks promulgated Official Mexican Standard NOM-047-SSA1-2011 on June 6, 2012.
  - This NOM also answers the need for a guide to support the risk evaluation for those who work with chemical substances in order to implement and evaluate control measures aimed at health maintenance and prevention of adverse effects on the workers.
  - Table 1 of Appendix A of this standard shows the regulated Biological Exposure Indices (BEIs) for occupationally exposed personnel to chemical substances.



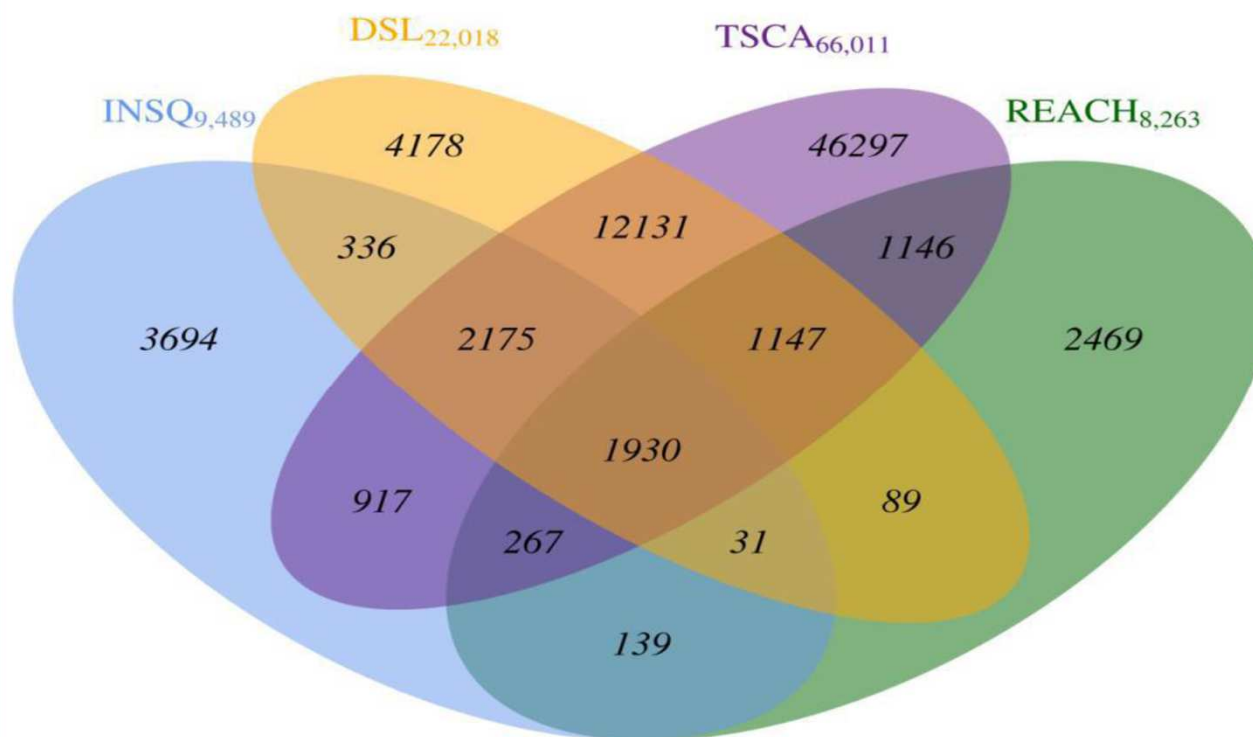
# Mexico Relevant Regulations



- **November 2012** - The National Institute of Ecology and Climate Change (Instituto Nacional de Ecología y Cambio Climático - INECC) published the long awaited Mexican National Chemicals Inventory (INSQ)
  - The inventory was last updated in 2014, identifying a total of 9,484 substances in the inventory
  - Incorporates chemical substances and mixtures which have been manufactured or imported in Mexico from 2009 to 2013
  - The inventory is not compulsory
  - There is no notification requirement based on INSQ



# Mexico Relevant Regulations



Mexican  
National  
Chemicals  
Inventory  
(INSQ)

# Mexico



- With the update a model for a National Register of Chemical Substances (RNSQ) was created.
- Unclear on notification requirements, process, exemptions, etc.
  - Timeline
  - Pilot RNSQ – (2014-2016)
  - Construction of legal framework (2014-2018)
  - Continued collaboration with CEC



**THANK YOU  
TO  
THE SOCIETY OF CHEMICAL HAZARD  
COMMUNICATION**



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