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Secrétariat

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Comité d'experts du transport des marchandises dangereuses et du Système général harmonisé de classification et d'étiquetage des produits chimiques

Sous-Comité d'experts du transport des marchandises dangereuses

Quarante-sixième session
Genève, 1er-9 décembre 2014
Point 7 de l'ordre du jour provisoire
Nouvelles propositions d'amendements au Règlement type pour le transport des marchandises dangereuses

N-Aminoéthylpipérazine (ONU 2815): risque subsidiaire 6.1

Communication de l'expert des États-Unis d'Amérique[1]

Introduction

1. Dans la Liste des marchandises dangereuses, la N-Aminoéthylpipérazine est actuellement inscrite sous le no ONU 2815, classe 8, groupe d'emballage III.

2. Les données disponibles indiquent toutefois que la N-Aminoéthylpipérazine, actuellement classée dans la Liste des marchandises dangereuses en tant que matière corrosive pour la peau, devrait aussi se voir attribuer un risque subsidiaire de la division 6.1 pour raison de toxicité à l'absorption cutanée.

3. Les données de toxicité à l'appui de cette évaluation sont résumées dans la Base de données internationale sur les informations chimiques unifiées (IUCLID) tenue en application du Règlement européen concernant l'enregistrement, l'évaluation et l'autorisation des substances chimiques, ainsi que les restrictions applicables à ces substances (REACH). La fiche de données de la N-Aminoéthylpipérazine figure à l'annexe 1 du présent document. Les données d'essais de toxicité pertinentes sont reproduites à l'annexe 2 et indiquent que la N-Aminoéthylpipérazine présente une toxicité par absorption cutanée pour une dose de 866 mg/kg. Cette valeur correspond, pour une matière toxique à l'absorption cutanée, au groupe d'emballage III.

[1] Conformément au programme de travail du Sous-Comité pour la période 2013-2014, adopté par le Comité à sa sixième session (voir ST/SG/AC.10/C.3/84, par. 86, et ST/SG/AC.10/40, par. 14).

4. Compte tenu des propriétés de toxicité cutanée décrites ci-dessus, et conformément au paragraphe 2.0.3 du Règlement type (Ordre de prépondérance des caractéristiques de danger), la N-Aminoéthylpipérazine resterait affectée à la classe 8, avec un risque subsidiaire 6.1. Il est donc proposé d'apporter les modifications nécessaires à la Liste des marchandises dangereuses, tel qu'indiqué ci-après. Après examen des Principes directeurs, outre l'ajout du risque subsidiaire, aucune autre modification (à savoir, la modification des dispositions relatives aux emballages ou aux citernes) n'est nécessaire.

Proposition

5. Modifier la rubrique 2815 de la Liste des marchandises dangereuses comme suit:

N° ONU	*Nom et description*	*Classe ou division*	*Risque subsidiaire*	*Groupe d'emballage*	*Dispositions spéciales*	*Quantités limitées et quantités exceptées*		*Emballages et GRV*		*Citernes mobiles et conteneurs pour vrac*	
								Instructions d'emballage	**Dispositions spéciales**	**Instructions de transport**	**Dispositions spéciales**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
2815	N-AMINOÉTHYL PIPÉRAZINE	8	6.1	III		5 L	E1	P001 IBC03 LP01		T4	TP1

Annexe 1

[*Anglais seulement*]

DATA SHEET TO BE SUBMITTED TO THE UNITED NATIONS FOR NEW OR AMENDED CLASSIFICATION OF SUBSTANCES

Submitted by……..United States Date….4 September 2014

Supply all relevant information including sources of basic classification data. Data should relate to the product in the form to be transported. State test methods. Answer all questions - if necessary state "not known" or "not applicable" - If data is not available in the form requested, provide what is available with details. Delete inappropriate words.

Section 1. SUBSTANCE IDENTITY

1.1 Chemical name **N-Aminoethylpiperazine**

1.2 Chemical formula $C_6H_{15}N_3$

1.3 Other names/synonyms 2-piperazin-1-ylethanamine

1.4.1 UN number **2815.....**1.4.2**.....** CAS number **140-31-8**

1.5 Proposed classification for the Recommendations

1.5.1 Proper shipping name (3.1.2) **N-AMINOETHYLPIPERAZINE**.....

1.5.2 Class/division **8** .....…. subsidiary risk(s) **6.1**..... packing group **III** .....

1.5.3 Proposed special provisions, if any **Not Applicable**.....

1.5.4 Proposed packing instruction(s) **Not Applicable** ……. .....

Section 2. PHYSICAL PROPERTIES

2.1 Melting point or range ……..**-19 °C**

2.2 Boiling point or range ……...**220.4 °C**

2.3 Relative density at:

2.3.1……15 °C

2.3.2……20 °C **0.98 g/cm^3**

2.3.3……50 °C

2.4 Vapour pressure at:

2.4.1……50 °C **5.15 Pa @ 20 °C**

2.4.2……65 °C

2.5...Viscosity at 20 °C …….**14.1 mPa – sec @ 20 °C**

2.6 Solubility in water at 20 °C ……..~~g/100ml~~ **> 100 g/l**

2.7 Physical state at 20°C (2.2.1.1) **liquid**

2.8 Appearance at normal transport temperatures, including colour and odour

Clear liquid; Amine odor

2.9 Other relevant physical properties

Section 3. FLAMMABILITY

3.1 Flammable vapour

3.1.1 Flash point (2.3.3) **99 °C cc**

3.1.2 Is combustion sustained? (2.3.1.3) **no**

3.2 Autoignition temperature ..... **>300 °C**

3.3 Flammability range (LEL/UEL) **1.1 – 9.4 %**

3.4 Is the substance a flammable solid? (2.4.2[1]) **no**

3.4.1 If yes, give details.....

Section 4. CHEMICAL PROPERTIES

4.1 Does the substance require inhibition/stabilization or other treatment such as nitrogen blanket to prevent hazardous reactivity? **no**

If yes, state:

4.1.1 Inhibitor/stabilizer used .....

4.1.2 Alternative method .....

4.1.3 Time effective at 55 °C.....

4.1.4 Conditions rendering it ineffective .....

4.2 Is the substance an explosive according to paragraph 2.1.1.1? (2.1[1]) **no**

4.2.1 If yes, give details.....

4.3 Is the substance a desensitized explosive? (2.4.2.4[1]) **no**

4.3.1 If yes, give details.....

4.4 Is the substance a self-reactive substance? (2.4.1[1]) **no**

If yes, state:

4.4.1 Exit box of flow chart.....

What is the self-accelerating decomposition temperature (SADT) for a 50 kg package? .....°C

Is the temperature control required? (2.4.2.3.4[1]) yes/no

4.4.2 Proposed control temperature for a 50 kg package..... °C

4.4.3 Proposed emergency temperature for a 50 kg package..... °C

4.5 Is the substance pyrophoric? (2.4.3[1]) **no**

4.5.1 If yes, give details.....

4.6 Is the substance liable to self-heating? (2.4.3[1]) **no**

[2] See definition of "liquid" in 1.2.1 of the Model Regulations on the Transport of Dangerous Goods.

[1] This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

4.6.1 If yes, give details

4.7 Is the substance an organic peroxide (2.5.1) **no**

If yes state:

4.7.1 Exit box of flow chart.....

What is the self accelerating decomposition temperature (SADT) for a 50 kg package? ……°C

Is temperature control required? (2.5.3.4.1[1]) yes/no

4.7.2 Proposed control temperature for a 50 kg package..... °C

4.7.3 Proposed emergency temperature for a 50 kg package..... °C

4.8 Does the substance in contact with water emit flammable gases? (2.4.4[1]) **no**

4.8.1 If yes, give details.....

4.9 Does the substance have oxidizing properties (2.5.1[1]) **no**

4.9.1 If yes, give details..... .....

4.10 Corrosivity (2.8[1]) to:

4.10.1 ……mild steel **0.005 mm/year** **at 25 °C**

4.10.2 ……aluminium mm/year at °C

4.10.3 ……other packaging materials (specify)

mm/year at °C

mm/year at °C

4.11 Other relevant chemical properties **None**

Section 5. HARMFUL BIOLOGICAL EFFECTS

5.1 LD_{50}, oral (2.6.2.1.1[1]) **2140 mg/kg Rat**

5.2 LD_{50}, dermal (2.6.2.1.2[1]) **866 mg/kg Rabbit**

5.3 LC_{50}, inhalation (2.6.2.1.3[1])...mg/l.....Exposure time hours

or..... **6** ml/m^3 Animal species .....

5.4 Saturated vapour concentration at 20 °C (2.6.2.2.4.3[1]) **50 - 75 ppm**

5.5 Skin exposure (2.8[1]) results **30 - 60 minutes Rabbit**

5.6 Other data **PG III**

5.7 Human experience

Section 6. SUPPLEMENTARY INFORMATION

6.1 Recommended emergency action

6.1.1 Fire (include suitable and unsuitable extinguishing agents)

6.1.2 Spillage

[1] This and similar references are to chapters and paragraphs in the Model Regulations on the transport of Dangerous Goods.

6.2 Is it proposed to transport the substance in:

6.2.1 Bulk Containers (6.8[1]) **yes**

6.2.2 Intermediate Bulk Containers (6.5[1])? **yes**

6.2.3 Portable tanks (6.7[1])? **yes**

If yes, give details in Sections 7, 8 and/or 9.

Section 7. BULK CONTAINERS (only complete if yes in 6.2.1)

7.1 Proposed type(s) **Currently Authorized Containers**

Section 8. INTERMEDIATE BULK CONTAINERS (IBCs) (only complete if yes in 6.2.2)

8.1 Proposed type(s) **Currently Authorized IBCs**

Section 9. MULTIMODAL TANK TRANSPORT (only complete if yes in 6.2.3)

9.1 Description of proposed tank (including IMO tank type if known) **Currently Authorized Tanks**

9.2 Minimum test pressure

9.3 Minimum shell thickness

9.4 Details of bottom openings, if any

9.5 Pressure relief arrangements

9.6 Degree of filling .....

9.7 Unsuitable construction materials ……

Annexe 2

[*Anglais seulement*]

7.2.3 Acute toxicity: dermal

Endpoint study record: KS_DOW & Smyth_1956;1962: Acute dermal, rat

UUID IUC5-906da860-5b49-4b7e-97fa-86d8ee4ca8ed
Dossier UUID 0
Author N006097 / (No legal entity)
Date 2010-05-18 18:01:43 EDT
Remarks

Administrative Data

EU: REACH

Purpose flag	key study; robust study summary		
Study result type	experimental result	**Study period**	Not applicable
Reliability	2 (reliable with restrictions)		
Rationale for reliability incl. deficiencies	2e: Meets generally accepted scientific standards, well-documented and acceptable for assessment		

Data source

Reference

Reference type	Author	Year	Title	Bibliographic source	Testing laboratory	Report no.	Owner company	Company study no.	Report date
publication	Smyth, H.F. et al	1962		Am Ind Hyg Assoc J, vol 23 ; p. 95					
study report	The Dow Chemical Company	1956	N-(2-AMINOETHYL) PIPERAZINE: RANGE FINDING TESTS ON N-(2-AMINOETHYL) PIPERAZINE		Mellon Institute of Industrial Research Univeristy of Pittsburgh Pittsburgh, Pmeesylvania USA	19-22	The Dow Chemical Company	K-024280-016	1956-01-30

Data access

data published

Cross-reference to same study

Not applicable

Materials and methods

Test type

standard acute method

Limit test

no

Test guideline

Qualifier	Guideline	Deviations
no guideline available		

Principles of method if other than guideline

Essentially followed the method of Draize et al.

GLP compliance

no

Test materials

Identity of test material same as for substance defined in section 1 (if not read-across)

yes

Test material identity

Identifier	Identity
CAS number	140-31-8
EC number	205-411-0
IUPAC name	2-piperazin-1-ylethanamine

Details on test material

AEP reported to contain 2.5% diethylenetriamine.

Confidential details on test material

Not applicable

Test animals

Species

rabbit

Strain

New Zealand White

Sex

male

Details on test animals and environmental conditions

Groups of four male New Zealand white rabbits, 3 to 5 months of age and averaging 2.5 kg were used.

The rabbits were procured locally and maintained on Rockland rabbit ration.

Administration / exposure

Type of coverage

occlusive

Vehicle

no data

Details on dermal exposure

The fur is removed and the test material applied beneath an impervious plastic film

Duration of exposure

The test material is in contact for 24 hours after which the plastic film is removed and the rabbits are held for a 14-day observation period.

Doses

0.625 or 1.25 ml of test material/kg

No. of animals per sex per dose

4 males/dose

Control animals

no data

Details on study design

Rabbits were immobilized during the 24-hour skin contact period. Thereafter, the "Vinylite" sheeting used to retain the dose in contact with the clipped skin of the trunk was removed and the animals were caged for the remainder of the 14-day observation period.

Statistics

Thompson's method of calculating the LD50 was used.

Any other information on materials and methods incl. tables

Male albino New Zealand strain rabbits, 3 to 5 months of age and averaging 2.5 kg. in weight were imobilized during the 24-hour skin contact period. Thereafter, the "Vinylite" sheeting used to retain the dose in contact with the clipped skin of the trunk was removed and the animals were caged for the remainder of the 14-day observation period.

Results and discussions

Preliminary study (if fixed dose study)

Not applicable

Effect levels

Sex	Endpoint	Effect level	Based on	95% CL	Remarks
male	LD50	866 mg/kg bw			

Mortality

One of three male rabbits dosed with 0.625 ml/kg died and two of three male rabbits dosed with 1.25 ml/kg died. All deaths occurred within 2 days.

Clinical signs

No additional information available.

Body weight

The lone survivor from the high dose group lost 250 grams while the two survivors from the low dose lost 290 gram or gained 30 grams.

Gross pathology

Congestion of the lungs, mottling of the livers and pitting or speckling of the kidney surfaces was observed (not stated whether this was in the survivors or animals that died).

Other findings

No additional information available.

Any other information on results incl. tables

These covered applications produced necrosis of the skin, congestion of the lungs, mottling of the livers and pitting or speckling of the kidney surf aces.

Aminopropyl rnorpholine has a comparable value of 1.2 m l /kg. and diethylene trimine 1.1 ml/kg.

Overall remarks, attachments

Overall remarks

0.88 ml/kg corresponds to 866 mg/kg using a density of 0.984g/cm3 at 20°C.

Applicant's summary and conclusion

Interpretation of results

Toxicity Category III

Criteria used for interpretation of results

OECD GHS

Conclusions

The 24 hour dermal LD50 was 0.88 ml/kg (866 mg/kg).

Executive summary

By skin penetration on rabbits the LD50 is 0.88 (0.34 to 2.3) ml/kg (866 mg/kg). This is to be expected because of the necrotic action of the mixture on rabbit skin which destroys the skin barrier entirely.

Cross-reference to other study

Not applicable