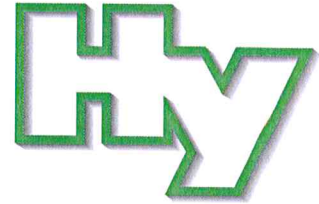


Hygiene-Institut des Ruhrgebiets

Institut für Umwelthygiene und Toxikologie

Direktor: Prof. Dr.rer.nat. Lothar Dunemann

Träger: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V.



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Unser Zeichen: A-251796-14-Bi
Ansprechpartner: Herr Bien

Gelsenkirchen, den 19.12.2014

Bonpet fire-extinguishing liquid here: Skin and Eye irritancy

Your order 2014-0052 from 01.10.2014 and our offer A-248765-14-Bi from 30.09.2014

Within the scope of the afore mentioned letter you commissioned us to conduct tests regarding skin and eye irritancy of the fire extinguishing agent "**Bonpet fire-extinguishing liquid**" we received on October 10th 2014.

1. Skin irritancy

1.1 Method

The determination of the skin irritancy was done using three albino rabbits. For the so-called Patch-Test 2,5 ml of the extinguishing agent "**Bonpet fire-extinguishing liquid**" was applied to a 20 x 20 mm area of shorn skin. The condition of the skin of each rabbit was monitored regularly over the following days. The assessment of the result was done in accordance with the guideline of the Commission 92/69/EEC along the following scale:

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Deutsche
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D-PL-13042-02-00

Träger: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V., Vereinsregister: VR 519 Amtsgericht Gelsenkirchen, USt-ID: DE125018356
Vorstand: Prof. Dr. Werner Schlake (Vors.), Prof. Dr. Jürgen Kretschmann, Dr. Emanuel Grün, Volker Vohmann, Prof. Dr. Lothar Dunemann (geschäftsführ. Vorstand)

Development of Erythema and Scab

Value

No erythema	0
Very slight erythema (hardly detectable)	1
Clearly localised erythema.....	2
Moderate to severe erythema	3
Severe erythema (intense redness) to slight scab formation (deep damages)	4

Development of Oedema

No oedema	0
Very slight formation of oedema (hardly detectable).....	1
Slight, but clearly localised oedema (edges are clearly visible due to a significant swelling)	2
Moderate oedema (swelling of approx. 1 mm).....	3
Severe oedema (swelling of more than 1 mm and beyond the edges of the exposure area)	4

1.2 Test results

1.2.1 *Individual results of the skin observation*

"Bonpet fire-extinguishing liquid"

Animal- No.	Skin Irritancy	Observation Period (Days)					
		1	2	3	4	5	6
1	erythema and scab	1	0	0	0	0	0
	formation of oedema	0	0	0	0	0	0
2	erythema and scab	1	0	0	0	0	0
	formation of oedema	0	0	0	0	0	0
3	erythema and scab	1	0	0	0	0	0
	formation of oedema	0	0	0	0	0	0

1.2.2 Summary of the individual results

"Bonpet fire-extinguishing liquid"

	Score *
erythema and scab:	1
formation of oedema:	0

* Score = arithmetic mean of the maximum points of all three animals

This amounts to a total score of **1** for the extinguishing agent "**Bonpet fire-extinguishing liquid**". According to the hazardous substance law this product can be classified as **non-irritating towards skin**.

2. Eye Irritancy

2.1 Method

The eye irritancy determination was conducted on three albino rabbits (each weighing approx. 2 kg).

0,1 ml of the fire extinguishing agent "**Bonpet fire-extinguishing liquid**" was applied to the conjunctival sac of the right eye (test side). After the addition of the product the eye was held shut by hand for about five seconds.

On the day of treatment and the following five days the condition of the right eye was compared to the left eye (control side) and the maximum irritant effect was rated pursuant to the guideline of the Commission 92/69/EEC using the following points system:

Classification of Ocular Changes

Cornea

Opacity: Turbidity level (for the evaluation the densest area was used)

No ulceration or opacity	0
Scattered or diffuse opacity areas: (except for a slight turbidity of the normal lustre), details of the iris clearly visible	1
Easily discernable translucent area, details of the iris partly shadowed	2
Nacreous areas, no details of the iris visible, size of the pupil hardly identifiable	3
Opaque cornea, because of the opacity iris not visible.....	4

Iris

Normal	0
Distinctly deepened wrinkles, congestion, swelling, slight circumcorneal hyperaemia or injection; one of these symptoms or a combination of different symptoms; the Iris still reacts to light (slow reaction is positive)	1
No reaction to light, haemorrhage, severe damage (all or different symptoms)	2

Conjunctiva

Redness: Lids and/ or nictitating membrane

Blood vessels normal.....	0
Some blood vessels show a distinct hyperaemia (injection)	1
Diffuse, crimson colour, individual vessels hardly detectable	2
Diffuse vibrant red	3

Chemosis: Lids and/ or nictitating membrane

No swelling.....	0
Every swelling above normal (including nictitating membrane)	1
Distinct swelling with partial eversion of the lids	2
Swelling with approx. half-closed lids	3
Swelling with more than half-closed lids.....	4

2.2 Test results

2.2.1 Individual results of the eye observation

Animal No.	Eye Lesions	Observation Period (Days)											
		1		2		3		4		5		6	
		T	C	T	C	T	C	T	C	T	C	T	C
1	Cornea	0	0	0	0	0	0	0	0	0	0	0	0
	Iris	1	0	0	0	0	0	0	0	0	0	0	0
	Conjunctival redness	1	0	0	0	0	0	0	0	0	0	0	0
	Conjunctival chemosis	0	0	0	0	0	0	0	0	0	0	0	0
2	Cornea	0	0	0	0	0	0	0	0	0	0	0	0
	Iris	1	0	0	0	0	0	0	0	0	0	0	0
	Conjunctival redness	1	0	0	0	0	0	0	0	0	0	0	0
	Conjunctival chemosis	0	0	0	0	0	0	0	0	0	0	0	0
3	Cornea	0	0	0	0	0	0	0	0	0	0	0	0
	Iris	1	0	0	0	0	0	0	0	0	0	0	0
	Conjunctival redness	1	0	0	0	0	0	0	0	0	0	0	0
	Conjunctival chemosis	0	0	0	0	0	0	0	0	0	0	0	0

T = test side
C = control side

2.2.2 Summary of the individual results

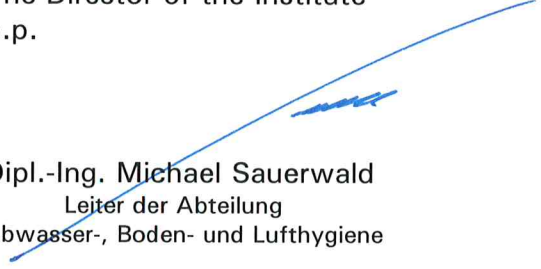
	Score
Cornea:	0
Iris:	1
Conjunctiva:	1

The afore mentioned results for the extinguishing agent "**Bonpet fire-extinguishing liquid**" amount to eye-irritancy level **1**. According to the hazardous substance law this product can be classified as **non-irritating towards eyes**.

Best regards

The Director of the Institute

p.p.



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