



Glues Working Group Meeting - BREMEN - 28th April 2006



## Speed Glues Health Report

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## Speed Glues Health Report

### VOC's Definition

#### MEANS

(VOC's) refers to Volatile Organic Compounds

#### PURPOSE

The VOC's are present on the speed glues and are being used approximately from 1970, with the purpose of providing greater speed and spin to the ball.



## Speed Glues Health Report

### VOC's Exposure

**Exposure to the organic volatile compounds during the training**

The players are themselves exposed to the VOC's during the gluing, previous to each session of training, and throughout the time that each training session lasts.





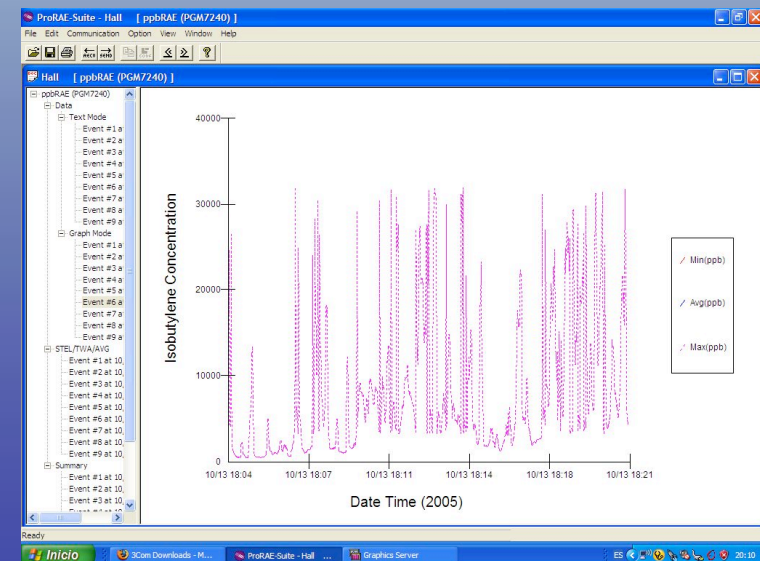
## Speed Glues Health Report

### VOC's Exposure

Measurements registered with the ppbRAE Photoionization Detector.

The following image shows the Organic Volatile Compound presence during 17 minutes, with sustained peaks of 30,000ppb.

This registry was made placing the sensor of the Detector ppbRAE to the level of the nose of a player, throughout the gluing process

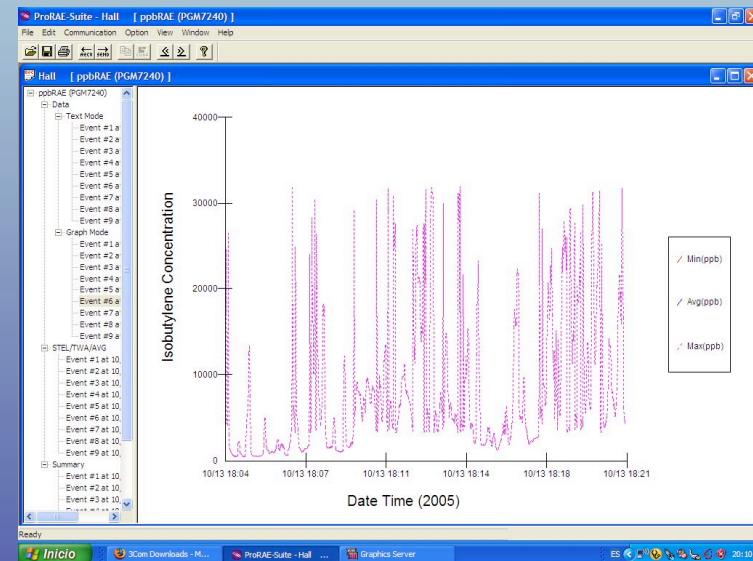




## Speed Glues Health Report

### VOC's Exposure

The detected peaks correspond with high values of the maximums of exposure time allowed by the TLV-STEL scales of 15 minutes, facilitated by the A.C.G.I.H. (American Conference of Governmental Industrial Hygienists).





## Speed Glues Health Report

# VOC's Known risks for human health

### **Note of Toxicity**

Inflammable or no inflammable, a product can be dangerous as a result of being inhaled, being absorbed or by simple contact with the skin.

The TLV-TWA (Threshold Limit Value - Time Weighted Average) the limits weighed expressed in p.p.m. (parts per million) or in mg./m.3 for a normal day of work of 8 hours and one week labour of 40 hours, in which almost all the workers can be exposed day after day without adverse effects

The TLV-STEL values (Threshold Limit Value - Short Term Exposure Limit) Limit of Exposure of Short Duration also expressed in p.p.m. or mg./m.3 is the Maximum concentration to which the workers can be exposed without undergoing chronic irritation or irreversible damages in weaves or diminution of the capacity or faculties of the individual that can increase the possibilities of accidental injuries.

This value defines as the exposure weighted average time during 15 minutes, that is not due to exceed at any moment.



## Speed Glues Health Report

# VOC's Known risks for human health

The labour world have been applying for years, recommendations and regulations for the use of these substances with the purpose of preventing acute injuries and to protect the health of the workers.

The risks for the health vary based on the type of compound and of the exposure time as follows:

### A) Short-term exposure or acute exposure

Oxidative and irritation on the different mucosa

Ocular irritation and upheavals in the vision, Irritation of the respiratory airways

Cutaneous Dermatitis

With symptoms of Migraine, Nausea, Fatigue, Loss of coordination, .

### B) The long-term exposure or chronic exposure:

Hepatic injuries

Renal Injuries

Respiratory chronic symptoms and exacerbation of previous chronic illnesses as asthma, bronchiectasys, etc

Alterations in the central nervous system

Cancer (In lab animals).



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## Speed Glues Health Report

# Speed Glues Lab Analysis

### **Chemical analysis of the glues:**

By order of the ITTF ,three glues of reference of the market have been Submitted to analysis to an International reference Laboratory in Luxembourg.

In the composition of the three analyzed glues we found:(VOC's)  
butane, hexane, pentane, ciclopentane, heptane, ciclohexane, octane,  
and other similar in smaller amount.

All of them are absorbed by inhalation and some by contact with the skin.





## Speed Glues Health Report

### Table Tennis players Health Assessment

Table Tennis players at CAR are submitted to a yearly health assessment. No alterations in the physical exploration have been detected, neither in the analyses of blood nor in electrocardiogram.

We have found alterations in the respiratory functional tests, in form of some diminution of the respiratory volumes registered by espirometric test.

These alterations clinically are under study, and do not go accompanied of clinical sintomatology.

These values have not improved in a sensibly manner with the treatment with bronchodilators.





## Speed Glues Health Report

### Players Health Assessment

#### **Espirometric measurements of the Table Tennis players:**

We have observed a diminution of the Forced Vital Capacity (FVC) in four of the eight players.

And the Forced Espiratory Volume in the first second (FEV1) in three of the eight players, comparing the assessments of 2005 and 2004.

The espirometric values of 14 players have been reviewed for several years.

We found, in 8 of them, a progressive diminution.

In all the cases we get a defined "Restrictive Pattern".

We cannot statistically conclude that these alterations are secondary to the irritation of the respiratory airways produced by the VOC's inhalation, but, as the suspicion level is very high, the research will continue.





## Speed Glues Health Report

### 6.- Health Recommendations

- 1.- To make a good sanitary education to concern family, coaches and players about the risks for the health of the VOC's.
- 2.- To fulfil strictly the recommendations already existing by the ITTF for the gluing process and to control the air quality, not only in the competition venues but also in the training facilities.
- 3.- As our responsibility is to care of the health of the sportsmen, we reinforced the decision of the ITTF to replace toxic compounds of the speed glues by other innocuous alternative compounds as a protection measure of the players and we are convinced that nowadays materials technology will contribute and provide technical solutions to the sport demand as it is done in other sports.



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Thanks for their contribution to:  
MD Mrs Carmen Porcar - CAR  
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Reported at the High Performance Training  
Center, CAR of Catalunya - Barcelona  
IT Manager - Josep Escoda - [jescoda@car.edu](mailto:jescoda@car.edu)



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Limitaciones al uso de agentes químicos

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Toxicological profile for Hexane. <http://www.epa.gov/>

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Asociación Americana del Pulmón

Asociación de Médicos de los Estados Unidos

Comisión de Seguridad de Productos del Consumidor de los Estados Unidos

Agencia de Protección Ambiental de los Estados Unidos

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<http://200.10.250.44/bvsci/e/fulltext/contint/contint.html>

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Department of Health and Human Services

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A.C.G.I.H. (American Conference of Industrial Governmental Hygienists).

<http://www.acgih.org/TLV/>