

Factsheet Energy Shots and Energy Drinks

1 Situation

Energy drinks vs. energy shots

Energy shots are energy drinks in concentrated form. A Red Bull Energy Shot (60 ml) contains the same "functional ingredients" and thus the same caffeine, taurine, glucuronolactone and inositol levels as a can of Red Bull Energy Drink, i.e. the fourfold concentration compared to the conventional 250 ml can¹. Unlike energy drinks, energy shots are classified as dietary supplements by their manufacturers (for meaning and consequences, please refer to Chronology, May 2012, page 2 et seq.). According to a statement by the Federal Institute for Risk Assessment (BfR) from December 2009, seven energy shots were available on the market at the time². The probably best-known product of this category, the "Red Bull Energy Shot", continues to be on the shelves in Germany³. On the packaging, the energy shot is promoted with the same words used for the conventional Red Bull Energy Drink:

- RED BULL® Energy Shot – especially developed for increased performance
- Helps to improve concentration
- Helps to increase alertness
- B-Complex Vitamins contribute to mental performance (pantothenic acid) and the reduction of tiredness and fatigue (niacin, pantothenic acid, B6, B12).

Health Risks

Scientists refer to potential undesirable health effects of energy drinks and energy shots. Cardiac arrhythmia, convulsions, renal failure and even mortality has been reported, mainly in combination with intense physical exercise, alcohol, and in risk groups. A causal relationship has not been established yet with absolute certainty. Both the US Food and Drug Administration (FDA)⁴ and the French food safety authority (ANSES)⁵ document and monitor undesirable effects of the consumption of energy drinks and energy shots. Energy *shots* are considered especially critical as they are highly concentrated, which results in a risk of excessive and too fast consumption. According to the manufacturer, the "intended dosage" of energy shots is one bottle per day. The health risks are not only substantiated by the increased caffeine levels alone, but first and foremost by the potential interactions with the other ingredients and with alcohol⁶. The manufacturers nevertheless put forth the argument that the caffeine content of an energy shot is comparable to the caffeine content of a cup of coffee⁷.

¹ http://www.redbull.ch/cs/Satellite/de_CH/Red-Bull-Energy-Shot/001243091736366?pcs_c=PCS_Product&pcs_cid=1243090205191

² http://www.bfr.bund.de/cm/349/health_risks_of_excessive_energy_shot_intake.pdf

³ Written reply by Red Bull Germany (5 June 2013) to a respective enquiry by foodwatch

⁴ See for instance <http://www.fda.gov/downloads/AboutFDA/CentersOffices/OfficeofFoods/CFSAN/CFSANFOIAElectronicReadingRoom/UCM328525.pdf>

⁵ <http://www.anses.fr/en/content/energy%2%A0drinks-health-professionals-asked-anses-declare-adverse-effects-brought-their>

⁶ Refer to http://www.bfr.bund.de/cm/349/health_risks_of_excessive_energy_shot_intake.pdf or http://www.ernaehrungs-umschau.de/media/pdf/pdf_2011/05_11/EU05_2011_B17_B20.qxd.pdf

⁷ Written reply by Red Bull Germany (5 June 2013) to a respective enquiry by foodwatch

Frequency of "energy drink" consumption

In a study⁸, EFSA for the first time had Europe-wide data compiled on the consumption of "energy drinks" for specific consumer groups, including children and adolescents⁹.

A brief overview of the key results:

- Almost one in three adults consumes energy drinks; with prevalence varying between member states (e.g. Germany 30 %; Austria 50 %, Cyprus 15 %)¹⁰.
- Especially popular among adolescents:
 - 68 % of 10 to 18-year olds use the trend products at least once per year.
 - 12 % of adolescent consumers were identified as high chronic consumers (consuming energy drinks 4 to 5 times per week or more); and 12 % as high acute consumers“ (more than 1 litre per single session)

Preventive health protection in the European food safety legislation

According to European food law, (Art. 14 para 1 of the regulation (EC) 178/2002) it is provided for the purpose of preventive (!) health protection of consumers that:

„In specific circumstances where, following an assessment of available information, the possibility of harmful effects on health is identified but scientific uncertainty persists, provisional risk management measures necessary to ensure the high level of health protection chosen in the Community may be adopted, pending further scientific information for a more comprehensive risk assessment.“¹¹

2 Chronology

November 2009

Red Bull launches Red Bull Energy Shots in Germany.¹²

December 2009

On behalf of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), the Federal Institute for Risk Assessment (BfR) reviewed the safety of energy shots and comes to the following conclusion:

"According to BfR, there is a risk that energy shots are not used in accordance with the manufacturer's advice for intended use. As consumers can be expected to disregard the suggested intake levels, thus taking in high doses of caffeine which could result in adverse effects, the Institute deems energy shots *unsafe* in terms of Article 14(1) of Regulation (EC) No. 178/2002. BfR estimates that in the case of "energy shot" products such expected consumer behaviour cannot be prevented by the manufacturer's advice for intended use on the label. BfR therefore recommends that "energy shot" products are prohibited from being placed on the market.“¹³ (emphasis added by foodwatch)

⁸ <http://www.efsa.europa.eu/de/supporting/pub/394e.htm>

⁹ Over 52,000 participants from 16 of the 27 EU member states were surveyed for the study, selected in order to guarantee an adequate coverage of the whole EU population and the different consumption styles.

¹⁰ 30% of adults surveyed declared to have consumed energy drinks at least once during the last year.

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002R0178:EN:NOT>

¹² http://www.lebensmittelzeitung.net/news/markt/protected/Red-Bull-Greift-an_75816.html (Login data needed)

¹³ http://www.bfr.bund.de/cm/349/health_risks_of_excessive_energy_shot_intake.pdf

May 2012

On 11 May 2012, the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) issued a press release on an amendment of the Fruit Juice Regulation, which provides for and states new maximum levels for energy *drinks*:

"The uniform maximum levels valid for all of these beverages alike will in the long run contribute to improved health protection of consumers."

Since energy *shots* are classified as food supplements by the manufacturers, they are not subject to the Fruit Juice Regulation, however. The Red Bull shot contains more than 415 percent of the caffeine and taurine contents admissible for energy *drinks* under the Fruit Juice Regulation. No information on the content of inositol and glucuronolactone is given on the label and the manufacturer even denied to disclose the respective information after a respective enquiry by foodwatch.¹⁴

	Maximum levels according to Fruit Juice Regulation (mg/l)	Content in Red Bull Energy Shot (mg/l) according to manufacturer	Content Red Bull Energy Shot (mg/l) according to manufacturer (in % of maximum levels for energy <i>drinks</i>)	Content Red Bull Energy Shot (mg/l) according to manufacturer (mg/60 ml bottle)
caffeine	(320)	1,330	415.63	(80)
taurine	4,000	16,670	416.75	(1000)
inositol	(200)	not disclosed	unknown	not disclosed
glucuronolactone	2,400	not disclosed	unknown	not disclosed

October 2012

The US Food and Drugs Administration FDA investigates whether five deaths in the US were caused by the energy drink "Monster". The mother of one of the teenage victims had filed an action against the manufacturer shortly before her daughter's death.¹⁵

November 2012

The FDA announces it has received reports of 13 deaths over the last four years that cited possible involvement of the energy shot "5-Hour Energy".¹⁶ The authority calls upon the general public to report additional cases.¹⁷

January 2013

foodwatch sends an enquiry to the Federal Institute of Risk Assessment asking whether the December 2009 assessment that energy shots are to be considered "unsafe" and should therefore be prohibited from being placed on the market is still valid. After all, two and a half

¹⁴ Written reply by Red Bull Germany (5 June 2013) to a respective enquiry by foodwatch

¹⁵ <http://www.nytimes.com/2012/10/23/business/fda-receives-death-reports-citing-monster-energy-a-high-caffeine-drink.html>

¹⁶ http://www.nytimes.com/2012/11/15/business/5-hour-energy-is-cited-in-13-death-reports.html?_r=0

¹⁷ <http://www.fda.gov/Food/NewsEvents/ucm328536.htm>

years have passed since the BfR sent its recommendation to the relevant ministry, but the products remain on the shelves. The reply:

"The assessment by the BfR remains basically unchanged. BfR continues to believe that energy shots are to be considered unsafe if they are not used in accordance with the manufacturer's advice for intended use and that owing to this fact a potentially high intake of caffeine is possible, which can have undesirable effects. BfR sees no health risks if the energy shots are used in accordance with the manufacturer's advice for intended use.

In order to counteract potential misuse, BfR recommends warnings on the product labels:

- *"Increased caffeine content in mg/ml and information on maximum daily intake.*
- *Undesirable effects cannot be ruled out when higher amounts are consumed in combination with intense physical exercise or alcoholic beverages.*
- *Not for children, pregnant or breastfeeding women or caffeine-sensitive people".¹⁸*

In a statement dating from 2009, BfR still believed that in the case of "energy shot" products, excessive intake beyond the recommended daily rate could not be prevented by a notice regarding the product's intended dosage on the label, which is why the institute recommended that "energy shot" products should be prohibited from being placed on the market (see above). In its communication with foodwatch, BfR does not explain why this recommendation should have become obsolete and why a notice on the intended use would now be a suitable measure.

February 2013

The French Agency for Food, Environmental and Occupational Health & Safety (ANSES) assesses energy shots as follows:

*"Given the high concentrations of substances such as taurine and D-glucuronolactone in these products, the Agency has stated in its opinions that their **safety cannot be guaranteed. Moreover, the nutritional value of these drinks has not been demonstrated.**"¹⁹*

For the less concentrated form, i.e. energy drinks, the authority concludes:

- *"These energy drinks are to be restricted to adults and are not recommended for pregnant women,*
- *they should not be consumed along with alcohol,*
- *they should be consumed in moderation and are not suitable for consumption during intense physical exercise."²⁰*

¹⁸ Refer to foodwatch correspondence with BfR, ref. no. 5-3531-00-7158273

¹⁹ <http://www.anses.fr/en/glossaire/1024>

²⁰ Ibid.

3 Résumé and demands made by foodwatch

Summary

- Energy drinks and concentrated energy shots are suspected of causing cardiac arrhythmia, convulsions, renal failure and even death, mainly in combination with intense physical exercise, alcohol and in risk groups.
- In 2009, the Federal Institute for Risk Assessment still considered energy shots to be "unsafe" and said that a warning label on the packaging would not be sufficient. Instead, BfR recommended the Federal Ministry of Consumer Protection to prohibit these products. In 2012, after nothing had happened since the 2009 recommendation, BfR deviated from its initial assessment without further explanation.

Demands made by foodwatch

For reasons of preventive health protection, foodwatch sees urgent need for action!

1. **Energy shots** must be prohibited. It must be expected that the maximum daily intake of a 60 ml bottle per day is significantly exceeded, which is why the product must be considered "unsafe".
2. **Energy drinks** must be restricted to adults aged 18 or older in order to take into account the potential health risks. In addition, the following warnings must be printed on the visible side of the packaging - in a striking size and colour:
 - a) Do not consume more than one can per day.
 - b) Do not consume in combination with alcohol or physical exercise.
 - c) Non-compliance with this warning can have health effects (e.g. cardiac arrhythmia, convulsions, renal failure).
 - d) Not to be consumed by children, pregnant or breastfeeding women, caffeine-sensitive people (including arrhythmia patients and patients with mental diseases).