

SAFEGUARDS

SGS CONSUMER TESTING SERVICES

FOOD

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NEW EU REGULATION FOR MAXIMUM LEVELS OF NITRATES IN FOODSTUFFS

On December 2, 2011 Regulation (EC) No. 1881/2006 was amended and replaced with Commission Regulation (EU) No. 1258/2011 which increases the maximum level of nitrate content in fresh lettuce and spinach. The maximum level of nitrates (NO_3) in fresh lettuce was changed from 4,500 to 5,000 NO_3 mg/kg and in fresh spinach was changed from 3,000 to 3,500 NO_3 mg/kg.

Nitrate is naturally presented in plant. It can transform to nitrite and then react with amines and amides to produce *N*-nitroso-compounds. These compounds have been connected to a possible cause of gastric, oesophageal, nasopharyngeal, and bladder cancer. Green leafy vegetables such as lettuce, spinach, and rucola contain higher level of nitrate than other foods. Nitrogen fertilization and light intensity are the major factors that influence the [nitrate content in vegetables](#).

Since there are differences in climatic conditions in regions of the EU, it is not possible to achieve the consistent nitrate level in fresh lettuce and spinach below the maximum level, established in 2006. To resolve this problem, regulation No. 1258/2011 was introduced in 2011 to increase the nitrate maximum level, as shown in Table 1.

In 2008 a risk assessment study was performed by the European Food Safety Authority (EFSA) which concluded that the new maximum levels are unlikely to result in appreciable health risks and recognized that the beneficial effect of the consumption of vegetables should prevail. Additionally, in 2010 the EFSA studied the potential acute effects of nitrate exposure at the new maximum level if consumed by infants and young children. EFSA concluded that for infants cooked spinach is more likely to be consumed than lettuce and at the current and new maximum levels of nitrates it is unlikely to be a health concern but at higher levels of consumption the risk could not be excluded. EFSA also concluded that there is no scientific data to showing health risks in young children consuming spinach and lettuce at this new maximum level of nitrates.



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TABLE 1 MAXIMUM LEVEL OF NITRATES IN FOODSTUFFS

	FOODSTUFFS	MAXIMUM LEVELS (mg NO ₃ / kg)	
1.1	Fresh spinaches (<i>Spinacia oleracea</i>)		3500
1.2	Preserved, deep-frozen or frozen spinach		2000
1.3	Fresh Lettuce (<i>Lactuca sativa</i> L.) (protected and open-grown lettuce) excluding lettuce listed in point 1.4	Harvested 1 October to 31 March: lettuce grown under cover lettuce grown in the open air	5000 4000
		Harvested 1 April to 30 September: lettuce grown under cover lettuce grown in the open air	4000 3000
1.4	"Iceberg" type lettuce	Lettuce grown under cover Lettuce grown in open air	2500 2000
1.5	Rucola (<i>Eruca sativa</i> , <i>Diplotaxis</i> sp., <i>Brassia tenuifolia</i> , <i>Sisymbrium tenuifolium</i>)	Harvested 1 October to 31 March: Harvested 1 April to 30 September:	7000 6000
1.6	Processed cereal-based foods and baby foods for infants and young children		200

Throughout SGS global network, we can help you to check the concentration of nitrate in vegetables by using a spectrophotometric technique and other techniques. This spectrophotometric technique has a Limit of Detection (LOD) and Limit of Quantification (LOQ) of 0.12 and 0.40 mg/kg, respectively. If you need more information, please don't hesitate to contact us.

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