The annotation for sodium nitrate on the National List at 7 CFR 205.602(g) expired on October 21, 2012. Pending further rulemaking, sodium nitrate is currently not prohibited in organic production under the USDA Organic Regulations. However, organic producers using sodium nitrate must comply with the requirements of 7 CFR §205.203. See the National Organic Program (NOP), [Notice 12-1 “Sodium Nitrate Use in Organic Production”](https://www.ams.usda.gov/sites/default/files/media/NOP-Notice-12-1-SodiumNitrate.pdf) for additional details.

The use of sodium nitrate poses a potential risk to crops, soils, and water.  Crop and soil contamination may be caused by high accumulation of sodium, which is relatively immobile in soils and is likely to accumulate in soils in semi-arid and arid environments.  Water contamination may be caused by the high solubility of the nitrate in this substance.  Sodium nitrate is a common nonpoint source water contaminant, particularly in agricultural areas, and is regulated under the Clean Water Act.

QCS reviews compliance with 7 CFR §205.203 for operation’s using sodium nitrate by confirming that not more than 20% of the crop’s nitrogen requirement comes from sodium nitrate OR by verifying the implementation of practices to sufficiently mitigate contamination of crops, soils, and waterways. Potential strategies may include:

* Use of sodium nitrate under plastic mulch.[[1]](#footnote-1)
* Incorporation of sodium nitrate into the soil instead of broadcasting it.[[2]](#footnote-2)
* Multiple applications of sodium nitrate in smaller doses instead of a single larger application.[[3]](#footnote-3)
* Evidence that soils have high cation exchange capacity (CEC).  This may include: [[4]](#footnote-4)
  + Clay soils with high CEC that are less susceptible to leaching than sandy soils.[[5]](#footnote-5)
  + Employment of cultural methods that increase soil organic matter (OM) and CEC, as higher soil OM = less N leeching and more buffering against salt buildup.[[6]](#footnote-6)
* Adopting a crop rotation that precludes using sodium nitrate in the same field for two consecutive years such as rotating a legume crop with a non-legume crop.  Sodium nitrate would not be applied to the legume crop, which would itself provide fixed nitrogen and reduce the residual (excess) nitrogen in the soil.[[7]](#footnote-7)
* Precision application such as hand-applying sodium nitrate only to the base of each plant.[[8]](#footnote-8)
* Application timing – preferably not during excessively wet conditions.[[9]](#footnote-9)
* If applied in liquid form, using precision irrigation designed to not penetrate below root zone. For instance, in blueberries in sandy soil a BMP is to use two drip lines on opposite sides of each row, running for half the time or less. In this way irrigation events soak the entire bed without penetrating past root zone.[[10]](#footnote-10)
* Applying only when analysis shows nitrogen deficiency.[[11]](#footnote-11)
* Not applying sodium nitrate on the lower portion of a slope.[[12]](#footnote-12)
* Terracing, diversion ditches, waterways and swales to prevent loss of N into natural waterways.[[13]](#footnote-13)
* Planting cash crops or cover crops to use up leftover N applied to previous cash crop.[[14]](#footnote-14)

Please complete the form below for each organic crop or group of organic crops produced with sodium nitrate and submit it to QCS ***with your next annual renewal application****.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operation Name: | | | | Entity #: | | | | | |
| Crop(s): | | Nitrogen Requirement: | | | | | Basic soil type: | | |
| **Applied Nitrogen from Sodium Nitrate** | | | | | | | | | |
| **Fill in the table below to calculate nitrogen applications** | | | | | | | | | |
| Name of fertilizer |  | | | |  | | |  | |
| Does fertilizer contain sodium nitrate? | Yes  No | | | | Yes  No | | | Yes  No | |
| (A) Annual application rate (Lbs./Acre) of fertilizer | (A) | | | | (A) | | | (A) | |
| (B) % N (N analysis/100) | From sodium nitrate | | Not from sodium nitrate | | From sodium nitrate | Not from sodium nitrate | | From sodium nitrate | Not from sodium nitrate |
| (B1) | | (B2) | | (B1) | (B2) | | (B1) | (B2) |
| (C) Applied nitrogen (A \* B) | From sodium nitrate | | Not from sodium nitrate | | From sodium nitrate | Not from sodium nitrate | | From sodium nitrate | Not from sodium nitrate |
| (C1) | | (C2) | | (C1) | (C2) | | (C1) | (C2) |
| (D) Total Nitrogen application rate (Sum of all C1 and C2 values) | | | | | (D) | | | | |
| (E) Total Nitrogen applied from sodium nitrate (Sum of all C1 values) | | | | | (E) | | | | |
| (F) Percent nitrogen requirement applied from sodium nitrate. (Nitrogen Requirement/E\*100) | | | | | (H) | | | | |
| Is the value of F greater than (>) 20%? | | | | | Yes  No | | | | |
| If yes, describe of practices your operation uses or will use to mitigate contamination of crops, soils, and waterways. | | | | | | | | | |

1. <https://content.ces.ncsu.edu/plasticulture-for-commercial-vegetables> [↑](#footnote-ref-1)
2. <http://www.cals.uidaho.edu/edcomm/pdf/cis/cis0757.pdf> [↑](#footnote-ref-2)
3. <https://ag.umass.edu/greenhouse-floriculture/fact-sheets/best-management-practices-bmps-to-increase-fertilizer-efficiency> [↑](#footnote-ref-3)
4. <http://www.scielo.br/pdf/sa/v68n4/v68n4a03.pdf> [↑](#footnote-ref-4)
5. <http://www.fao.org/docrep/009/a0100e/a0100e09.htm#TopOfPage> [↑](#footnote-ref-5)
6. <https://www.extension.purdue.edu/extmedia/ay/ay-238.html> [↑](#footnote-ref-6)
7. <http://ac.els-cdn.com/0307904X9390039J/1-s2.0-0307904X9390039J-main.pdf?_tid=8129eadc-a5c3-11e6-a34e-00000aab0f6b&acdnat=1478617158_1753c1c2cb6f03017fedb60483b6446f> [↑](#footnote-ref-7)
8. <https://www.reacchpna.org/case_studies/precision_nitrogen> [↑](#footnote-ref-8)
9. <http://cceonondaga.org/resources/nitrogen-basics-the-nitrogen-cycle> [↑](#footnote-ref-9)
10. <http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/598372/irrigation-and-moisture-monitoring-in-blueberries.pdf> [↑](#footnote-ref-10)
11. <https://extension.unh.edu/resources/files/Resource003548_Rep5069.pdf> [↑](#footnote-ref-11)
12. <http://nysgolfbmp.cals.cornell.edu/wp-content/uploads/2013/10/FS_PreventingNitrogenRunoff.pdf> [↑](#footnote-ref-12)
13. <http://athenaeum.libs.uga.edu/bitstream/handle/10724/12122/B1152-15.pdf?sequence=1> [↑](#footnote-ref-13)
14. <http://ohioline.osu.edu/factsheet/agf-142> [↑](#footnote-ref-14)