National Organic Standards Board
Handling Subcommittee
Sodium Bicarbonate Reclassification Proposal
Spring 2026

Introduction

The Handling Subcommittee requested the reclassification of sodium bicarbonate as a work agenda as a result of its review of the 2025 technical report (TR) during the sunset review process. Due to the age of the information regarding sodium bicarbonate's classification (from 1995 TAP) and the concerns raised during the previous sunset review regarding the substances manufacturing processes and classification, the Handling Subcommittee requested a new TR.

The Handling Subcommittee proposes to update the regulations to align with the types of sodium bicarbonate in use today.

Background

Sodium bicarbonate was added to the National List with the first publication of the National Organic Program (NOP) Final Rule (65 FR 80548, December 21, 2000). This substance had a Technical Advisory Panel Report (TAP) from 1995. The original TAP combined the two sodium carbonates (sodium carbonate and sodium bicarbonate) for their preliminary review.

The 2025 TR explains the historical classification of sodium bicarbonate: During the 1995 NOSB meeting in Orlando, Florida, the NOSB voted to classify sodium bicarbonate as nonsynthetic. Prior to the Board's vote, a TAP report was conducted that briefly described the manufacturing process for sodium bicarbonate. Publicly available notes from the NOSB meeting do not contain any further details regarding the decision to classify sodium bicarbonate as nonsynthetic, or which forms are nonsynthetic. The classification recommended by the NOSB in 1995 was not based on the decision tree in Guidance NOP 5033-1: Decision Tree for Classification of Materials as Synthetic or Nonsynthetic, which was not published until 2016. The 1995 TAP review only discussed two manufacturing processes, neither of them being the direct method from nahcolite. Based on the NOSB recommendation and the listing of sodium bicarbonate on 7 CFR 205.605(a) as nonsynthetic, many certifiers and material review organizations consider sodium bicarbonate from trona ore as nonsynthetic, and sodium bicarbonate from the Solvay process as synthetic (2025 TR, lines 757-769).

However, in recent rounds of sunset review (after the publication of NOP 5033-1) stakeholders have questioned the classification.

Discussion

The 2025 TR explains the various manufacturing processes of sodium bicarbonate and the resulting synthetic or nonsynthetic classification, as well as which forms are primarily available for commercial uses.

1. **Sodium bicarbonate produced from sodium carbonate:** Food-grade sodium bicarbonate is primarily derived from the carbonation of a refined sodium carbonate precursor. There are two primary ways to produce sodium bicarbonate from sodium carbonate: the Solvay process or from trona ore.
    a. **Solvay process** (2025 TR, lines 783-789)
    The Solvay process utilizes ammonia, a synthetic reactant produced through the Haber-Bosch process. The Solvay process involves a displacement reaction between sodium

chloride and ammonia, which takes place in the presence of carbon dioxide, derived from calcium carbonate. This reaction facilitates the formation of sodium bicarbonate. Due to this, the material is synthetic because it is not manufactured from a natural source.

b. **Trona ore processing** (2025 TR, lines 791-813)
Sodium bicarbonate is manufactured through carbonation using two precursors (sodium carbonate and carbon dioxide).
    - The sodium carbonate precursor is produced by calcining (heating) sodium sesquicarbonate, which is mined. Sodium sesquicarbonate is a double salt of sodium carbonate and sodium bicarbonate. The calcination process decomposes sodium sesquicarbonate, ultimately releasing carbon dioxide and water. This converts the double salt into the single salt, sodium carbonate.
    - The carbon dioxide precursor may be derived from the calcination of lime, from carbon dioxide wells, from fermentation processes, from calcination of sodium sesquicarbonate, or from other sources.
    - Sodium carbonate is combined with carbon dioxide and water to produce sodium bicarbonate.

    According to the decision tree, a chemical change caused by heating a mineral results in a synthetic material. Furthermore, to create sodium bicarbonate, the material undergoes another chemical reaction to transform sodium carbonate into sodium bicarbonate via carbonation.

2. **Sodium bicarbonate extraction from nacholite deposits:** Nahcolite deposits of sodium bicarbonate are recovered through solution mining operations in the Green River area of Colorado. Hot, pressurized water is pumped into wells, and the saturated solution is cooled to precipitate sodium bicarbonate. This is the only common process to generate sodium bicarbonate directly from a mineral, without further chemical reactions (2025 TR, lines 547-551). According to evaluation question #1C in the 2025 TR, sodium bicarbonate extracted from nahcolite bed solution mining is nonsynthetic (2025 TR, lines 773-781). While sodium bicarbonate can be directly extracted from a mineral (nahcolite), this source is not as common as other sources (described above).

Due to the lack of clarity regarding the original listing and the fact that many certifiers believed sodium bicarbonate produced via trona ore to be nonsynthetic, it appears that much of the sodium bicarbonate in use today is actually synthetic.

To resolve this, two options were considered by the Subcommittee:
1. Keep the nonsynthetic listing only. This would significantly limit the allowed sodium bicarbonate, as any sodium bicarbonate produced from the processing or trona ore would be prohibited.
2. Add a listing for synthetic sodium bicarbonate produced via trona ore processing only. This would align with the status quo of certification decisions and prohibit synthetic sodium bicarbonate produced using the Solvay process.

The Subcommittee chose to move forward with the second option. This appears to align with the original intent of the listing (although it was inaccurate) and would not impact the market, whereas excluding sodium bicarbonate produced from the processing of trona due to its now known synthetic status could have significant market impact.

Summary of Proposal:

The Subcommittee proposes adding synthetic sodium bicarbonate to 7CFR 205.605(b).

Classification Motions:
Motion to classify sodium bicarbonate extracted from nahcolite deposits as nonsynthetic.
Motion by: Kyla Smith
Second by: Andrea Hatziyannis
Yes: 5 No: 0 Abstain: 0 Recuse: 0 Absent: 3

Motion to classify sodium bicarbonate produced from sodium carbonate (e.g. Solvay and trona ore) as synthetic.
Motion by: Kyla Smith
Second by: Amanda Felder
Yes: 5 No: 0 Abstain: 0 Recuse: 0 Absent: 3

National List Motion
Motion to add synthetic "sodium bicarbonate – produced via trona ore processing only" to 7CFR 205.605(b).
Motion by: Kyla Smith
Second by: Andrea Hatziyannis
Yes: 5 No: 0 Abstain: 0 Recuse: 0 Absent: 3