

Chocolate Chip Cookies

The following recipe for chocolate chip cookies recently appeared in *Chemical & Engineering News (C&EN, Jun 19, 1995, p. 100)*. It was attributed to Jeannene Ackerman of Witco Corp.

Ingredients:

1. 532.35 cm³ gluten
2. 4.9 cm³ NaHCO₃
3. 4.9 cm³ refined halite
4. 236.6 cm³ partially hydrogenated tallow triglyceride
5. 177.45 cm³ crystalline C₁₂H₂₂O₁₁
6. 177.45 cm³ unrefined C₁₂H₂₂O₁₁
7. 4.9 cm³ methyl ether of protocatechuic aldehyde
8. Two calcium carbonate-encapsulated avain albumen-coated protein
9. 473.2 cm³ theobroma cacao
10. 236.6 cm³ de-encapsulated legume meats (sieve size #10)

To a 2-L jacketed round reactor vessel (reactor #1) with an overall heat-transfer coefficient of about 100 Btu/F-ft²-hr add one, two, and three with constant agitation.

In a second 2-L reactor vessel with a radial flow impeller operating at 100 rpm add four, five, six, and seven until the mixture is homogeneous.

To reactor #2 add eight followed by three equal portions of the homogeneous mixture in reactor #1. Additionally, add nine and ten slowly with constant agitation. Care must be taken at this point in the reaction to control any temperature rise that may be the result of an exothermic reaction.

Using a screw extrude attached to a #4 nodulizer place the mixture piecemeal on a 316SS sheet (300 x 600 mm). Heat in a 460 K oven for a period of time that is in agreement with Frank & Johnston's first order rate expression (see JACOS, 21, 55), or until golden brown.

Once the reaction is complete, place the sheet on a 25 °C heat-transfer table allowing the product to come to thermal equilibrium.