## INGREDIENTS

|  | Control (\%) | 1\% WPC 80 (\%) | WPC 80 (\%) |
| :--- | ---: | ---: | ---: |
| Beef, 85\% lean | 53.00 | 49.00 | 53.00 |
| Oil emulsion (1:4:2) | 7.70 | 7.70 | 7.70 |
| Water, ice | 8.30 | 11.30 | 17.50 |
| Soy protein isolate : emusion (1:4) | 23.00 | 23.00 | 11.50 |
| Native starch (tapioca) | 4.40 | 4.40 | 4.40 |
| Salt, nitrate | 1.61 | 1.61 | 1.61 |
| Sugar | 0.53 | 0.53 | 0.53 |
| MSG | 0.11 | 0.11 | 0.11 |
| Flavor, smoked beef | 0.29 | 0.29 | 0.29 |
| Garlic | 0.29 | 0.29 | 0.29 |
| Onion | 0.58 | 0.58 | 0.58 |
| Pepper, white | 0.19 | 0.19 | 0.19 |
| Whey protein concentrate, 80\% | $\mathbf{-}$ | $\mathbf{1 . 0 0}$ | $\mathbf{2 . 3 0}$ |
| protein (WPC 80) | $\mathbf{1 0 0 . 0 0}$ | $\mathbf{1 0 0 . 0 0}$ | $\mathbf{1 0 0 . 0 0}$ |

## BENEFITS OF USING U.S. DAIRY

## WPC 80

- Meat replacement (1 part WPC : 3 parts water to replace 4 parts lean beef)
- Formulation cost savings
- Increase cook yield
- Improved bite
- Improve juiciness
- Reduce package purge
- Improve sliceability
- Cleaner, less beany flavor due to partial soy replacement


## PREPARATION

1. Make an oil emulsion with soy protein isolate, oil and water in the ratio soy protein isolate:water:oil = 1:4:2.
2. Make an soy protein isolate emulsion with one part soy protein isolate and 4 parts ice water.
3. Grind 33 kg of beef though a $\mathbf{3 ~ m m ~ ( 0 . 1 " ) ~ p l a t e ~ a n d ~}$ 20 kg through a $8 \mathrm{~mm}\left(0.3^{\prime \prime}\right)$ plate.
4. Chop the $\mathbf{3} \mathbf{~ m m ~ ( 0 . 1 " ) ~ m e a t ~ i n ~ a ~ b o w l ~ c h o p p e r ~ a n d ~ a d d ~}$ salt. When the emulsion is well formed, add starch.
5. Add the $\mathbf{8} \mathbf{~ m m ~ ( 0 . 3 " ) ~ m e a t ~ t o ~ t h e ~ b o w l ~ c h o p p e r ~ a n d ~}$ chop for 6-7 rounds.
6. Stuff mixture into 13.4 cm (5.3") HDPE caliber casing and cook at $85^{\circ} \mathrm{C}\left(185^{\circ} \mathrm{F}\right)$ for 120 min .
7. Shower with $\mathbf{2 5 - 3 0 ^ { \circ }} \mathrm{C}\left(77-86^{\circ} \mathrm{F}\right)$ water for 60 minutes
8. Package and store at $5^{\circ} \mathrm{C}\left(41^{\circ} \mathrm{F}\right)$.

NUTRITIONAL CONTENT

| Per 100g | Control | 1\% WPC 80 | $\mathbf{2 . 3 \%}$ <br> WPC 80 |
| :--- | ---: | ---: | ---: |
| Calories | 230 kcal | $\mathbf{2 3 0 \mathrm { kcal }}$ | $\mathbf{2 4 0 \mathrm { kcal }}$ |
| Total Fat | 16 g | 15 g | 16 g |
| Saturated Fat | 6 g | 5 g | 6 g |
| Trans Fat | 0 g | 0 g | 0 g |
| Cholesterol | 45 mg | 45 mg | 50 mg |
| Total Carbohydrates | 6 g | 6 g | 6 g |
| Dietary Fiber | 0 g | 0 g | 0 g |
| Sugars | 1 g | 1 g | 1 g |
| Protein | 17 g | 17 g | 17 g |
| Calcium | 27 mg | 35 mg | 41 mg |
| Magnesium | 14 mg | 15 mg | 17 mg |
| Phosphorus | 155 mg | 153 mg | 138 mg |
| Potassium | 180 mg | 170 mg | 190 mg |
| Sodium | 730 mg | 750 mg | 710 mg |
| Iron | 2 mg | 2 mg | 2 mg |
| Vitamin A | $0 I U$ | 11 U | $3 I \mathrm{U}$ |
| Vitamin C | 0 mg | 0 mg | 0 mg |

Rely on the dynamic lineup of U.S. dairy to meet consumer demands for global product development. The U.S. Dairy Export Council (USDEC) offers resources on ThinkUSAdairy.org including a dairy ingredient supplier search, consumer, nutrition and product research, technical insights and prototype assistance to help develop and launch your next successful product.
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