

## Water-Absorbing Capacity of Fats

One of the most common uses of fats is in emulsions such as salad dressings, mayonnaise, and margarines. In emulsions, fat and a liquid such as water or vinegar are suspended in each other. Some emulsions use emulsifying agents, such as lecithin or monoglycerides, to help keep the fat and liquid from separating. Other emulsions may be stable without the use of emulsifying agents. One of the factors which helps determine the emulsifying capacity of a fat is its water holding capacity, or the amount of water which can be taken up by a fat before the fat and water begin to separate. Water holding capacity of fats can be determined by measuring the amount of water which can be mixed into a fat before a separate layer of water becomes visible.

### Materials

- Lard

- Hydrogenated shortening
- Margarine
- Soft margarine
- Butter
- Burette and burette stand
- Electric mixer
- Bowls
- Balance

### Procedure

1. Bring all fats to room temperature.
2. Weigh out 100 grams of each type of fat into bowls for electric mixers.
3. Fill burette with water and place it so that the water can be run from the burette directly into the mixing bowl.
4. While beating at a slow speed, run water into the fat from a burette at about 20 milliliters per minute until separation occurs.

5. Record the amount of water taken up by 100 grams of each type of fat.
6. Graph the results.

### Questions

1. What factors influence the emulsifying capacity of fats.
2. Why is the emulsifying capacity of fat important?
3. Name 5 common emulsions. What is the type of fat and the type of liquid used in each?

