# NALGENE® 2210 Series

## Low Density Polyethylene Carboys With Handles

A good choice for storage and transport of reagents. Low density polyethylene (LDPE) resin is made using less catalyst than HDPE and is a better choice for reagents sensitive to the polymerization catalyst.

Round, graduated to contain in 5 liter and 1 gallon increments. Wide shoulder handles allow easy carrying and pouring even with gloved hands. Comes with valve-sealing 83B closure accepts No. 13-1/2 rubber stopper.

**BIOPHARMACEUTICAL PRODUCTS**

### Features/Benefits:

- **Unbreakable, chemically inert and ultra-pure**
- **Non-stick; easy to clean**
- **Wide shoulder handles for easy carrying and pouring**
- **One-Piece construction minimizes risk of leakage**
- **Graduated in gallons and liters**
- **83B closure and neck insures a tight closure**

| Cat. No. | 2210-0020 | 2210-0040 | 2210-0050 | 2210-0065 | 2210-0130 |
|---|---|---|---|---|---|
| Nom. Shoulder Cap., L | 10 | 15 | 20 | 25 | 50 |
| Nom. Shoulder Cap., gal. | 2-1/2 | 4 | 5-1/2 | 6-1/2 | 13 |
| Brim Cap., L (approx.) | 12.5 | 18 | 23 | 28 | 54 |
| No. per Case | 6 | 4 | 4 | 4 | 1 |

See next page for properties & characteristics of low density polyethylene

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| Physical Properties of LDPE/LLDPE | |
|---|---|
| **Material** | **LDPE/LLDPE** |
| Max Use Temperature | 80ºC |
| Heat Deflection Temperature[1] | 45ºC |
| Brittleness Temperature[11] | -100ºC |
| Transparency | Translucent |
| Microwavability[2] | Yes |
| Autoclaving[4] | No |
| Gas[4] | Yes |
| Dry Heat[4] | No |
| Radiation[4] | Yes |
| Disinfectants | Yes |
| Specific Gravity | 0.92 |
| Flexibility | excel |
| Permeability N2 | 180 cc•mil/100in²•24hr•atm |
| Permeability O2 | 500 cc•mil/100in²•24hr•atm |
| Permeability CO2 | 2,700 cc•mil/100in²•24hr•atm |
| Permeability N2 (metric) | 2,790 cc•mm/m²•24hr•Bar |
| Permeability O2 (metric) | 7,750 cc•mm/m²•24hr•Bar |
| Permeability CO2 (metric) | 41,850 cc•mm/m²•24hr•Bar |
| WVTR | 15.5 - 23.3 g•mm/m²•24hr•Bar @ 37ºC and 90% humidity |
| Water Adsorption | <0.01 |
| Non-cytotoxicity[6] | Yes |
| Food and Bev use Rating[7] | Yes[9] |
| CFR21 | 177.152 |

1. Heat Deflection Temperature is the temperature at which a bar deflects 0.01" at 66 psig (ASTM D648). Materials may be used above Heat Deflection temperatures in non-stress applications; see Max. Use Temp.
2. Ratings based on 5-minute tests using 600 watts of power on exposed, empty labware. CAUTION: Do not exceed Max. Use Temp., or expose labware to chemicals which heating cause to attack the plastic or be rapidly absorbed.
3. Plastic will absorb heat.
4. STERILIZATION:
   - Autoclaving (121ºC, 15 psig for 20 minutes) -- Clean and rinse items with distilled water before autoclaving. (Always completely disengage thread before autoclaving.) Certain chemicals which have no appreciable effect on resins at room temperature may cause deterioration at autoclaving temperatures unless removed with distilled water beforehand.
   - Gas -- Ethylene Oxide, formaldehyde, hydrogen peroxide
   - Dry Heat (160ºC, 120 minutes)
   - Disinfectants -- Benzalkonium chloride, formalin/formaldehyde, ethanol, etc.
   - Radiation -- gamma irradiation at 25 kGy (2.5 MRad) with unstabilized plastic.
5. Sterilizing reduces mechanical strength. Do not use PC vessels for vacuum applications if they have been autoclaved. Refer to Use and Care Guidelines for NALGENE Labware, for detailed information on sterilizing.
6. "Yes" indicates the resin has been determined to be non-cytotoxic, based on USP and ASTM biocompatibility testing standards utilizing an MEM elution technique on a WI38 human diploid lung cell line.
7. Resins meet requirements of CFR21 section of Food Additives Amendment of the Federal Food and Drug Act. End users are responsible for validation of compliance for specific containers used in conjunction with their particular packaging applications.
8. Acceptable for aqueous foods only, at temperatures up to 121ºC/250ºF. Not sanctioned for use with alcoholic or fatty foods at any temperature.
9. Acceptable for:
   - Nonacid, aqueous products; may contain salt, sugar or both (pH above 5.0)
   - Dairy products and modifications; oil-in-water emulsions, high or low fat
   - Moist bakery products with surface containing no free fat or oil
   - Dry solids with the surfaces containing no free fat or oil (no end-test required) and under all conditions as described in Table 2 of FDA Regulation 177.1520 except condition A - high temperature sterilization (e.g. over 100º C/212º F)
10. Acceptable for:
    - Alcoholic foods containing not more than 15% (by volume) alcohol; fill and storage temperature not to exceed 49ºC (120ºF)
    - Non-alcoholic foods of hot fill to not exceed 82ºC (180ºF) and 49ºC (120ºF) in storage.
    - Not suitable for carbonated beverages or beer or packaging food requiring thermal processing.
    - Straight-sided jars, beakers and graduated cylinders only.
    - Acceptable for aqueous, oil, dairy, acidic, and alcoholic foods up to 71ºC/160ºF .
11. The brittleness temperature is the temperature at which an item made from the resin may break or cracked if dropped. This is not the lowest use temperature if care is exercised in use and handling.

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