

Slab Dips and Release Agents

Application Information and Product Bulletins

This brochure describes the full line of Hallstar slab dips and release agents. The products are divided into two major groups: (1) the type of dip and (2) the release application they work in.

Types of dips:

- Floatable, non-pigmented
- Water-dispersible, non-pigmented
- Water-dispersible, pigmented

Release applications:

- Slab stock from a dip tank
- Post-slabbing operations, such as extrusions, preforms and molded goods

The following pages contain details and pictures on the above classifications.

Dips

Floatable, non-pigmented

- These dips are designed to float on top of the dip tank and transfer their release coating to the slab rubber as it moves in and out of the tank. These dips are commonly used in water-cooled systems (see Fig.1), where the dip tank precedes the water cooling tank. In this type of system, because the rubber is water-cooled after the dip is applied, the coating must be water insoluble or hydrophobic in order to remain on the rubber and provide release during stacking.

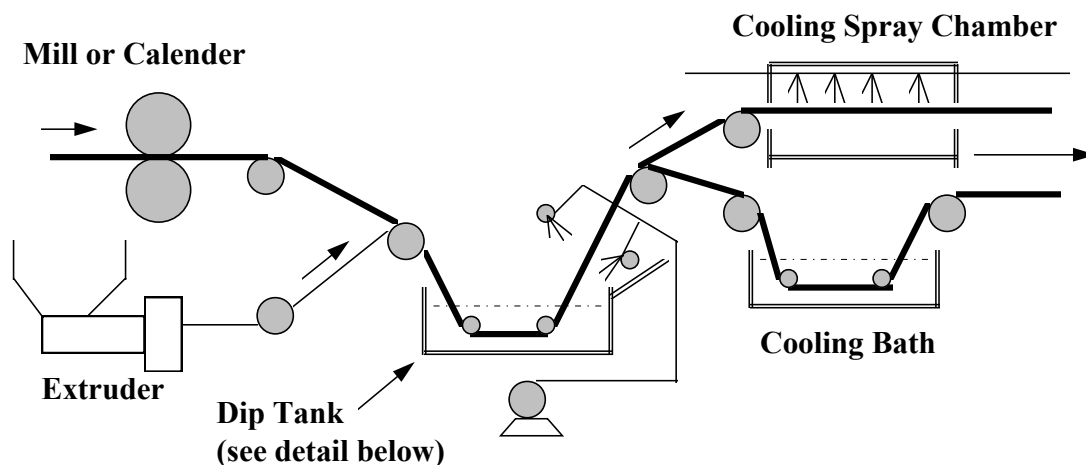


Fig. 1. Water-cooled system

- In non-agitated tanks, a smooth consistent paste floating on top of the tank will provide a complete and even coating on the rubber (see Fig. 2 below). These can be also be used in agitated tanks; however, more material may be needed in order to achieve adequate coverage of the rubber surface. In either case, these products should be premixed before being added to the dip tank.
- Because the coating is non-pigmented, these dips can be used on compounds that will not be re-mixed or re-milled prior to molding as they will melt into the rubber compound. If pigments were present, they could cause surface defects.
- These release agents can be used on slab stock and several post-slab applications, including profiles, hoses, seal and gasket tubes, etc.

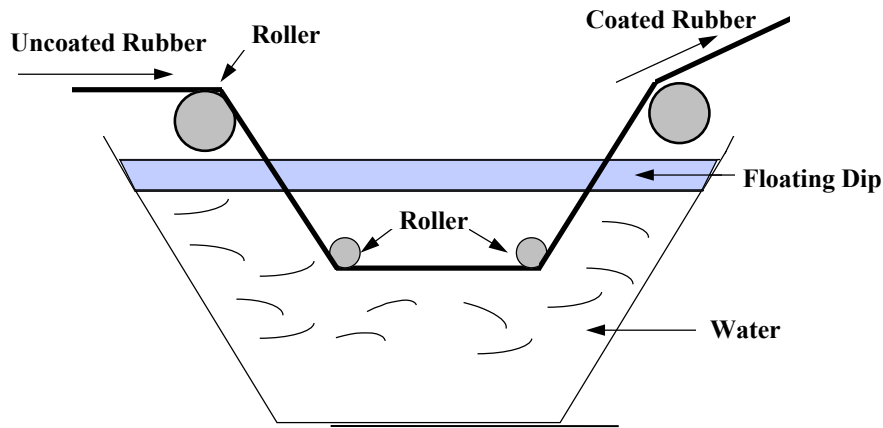


Fig. 2. Dip tank detail - floatable dips

Water dispersible, non-pigmented

- These dips are designed to mix evenly in the dip tank and transfer their release coating as the slab rubber moves through the middle of the tank. These dips are commonly used in air-cooled systems, where the slab stock is coated with dip and then air-cooled (see Figs. 3 and 4).

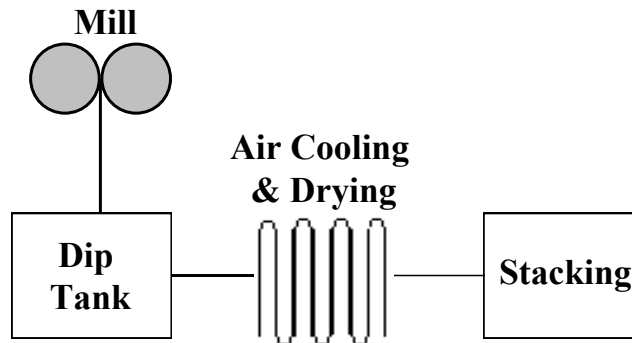


Fig. 3. Air-cooled system

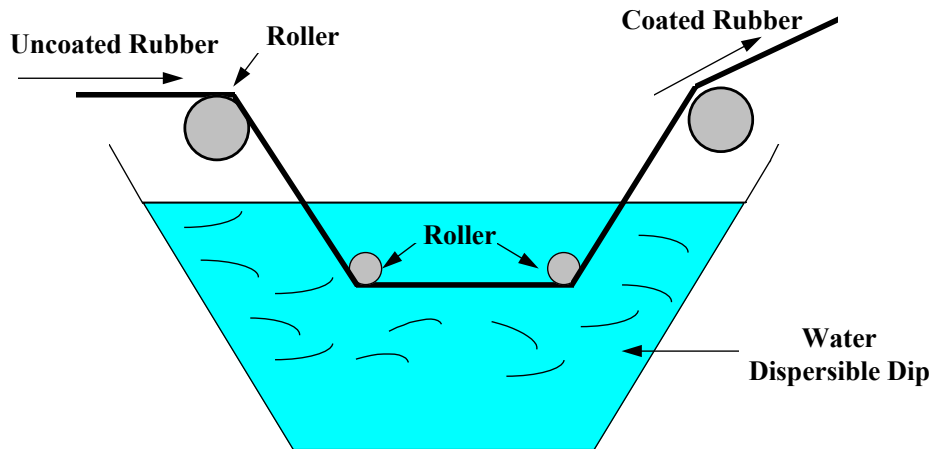


Fig. 4. Dip tank detail – dispersible dips

- These can be used in both agitated and non-agitated tanks. However, in non-agitated tanks, some product settling may occur over time. It is best to impart some agitation if settling occurs.
- Because the coating is non-pigmented, these dips can be used on compounds that will not be re-mixed or re-milled prior to molding as they will melt into the rubber compound. If pigments were present, they could cause surface defects.
- These release agents are used both on slab stock and in post-slabbing operations.

Water-dispersible, pigmented

- These dips are pigmented and can be used whenever the compound will be re-milled or re-mixed before molding. Re-mixing the rubber will incorporate the surface pigment back into the rubber compound.

Three types of slab dips

- **Floatable, non-pigmented**

- These dips are designed to float on top of non-agitated or agitated tanks and to be used in water-cooled systems for **slab stock and post-slabbing operations**.
- Zinc stearate, calcium stearate, low-melt calcium stearate
- Dispersions/slurries based in water and alcohol

- **Water-dispersible, non-pigmented**

- These dips are designed to mix evenly in agitated or non-agitated tanks and to be used in air-cooled systems for **slab stock and post-slabbing operations**.
- Zinc or calcium stearate in specially formulated surfactant/water dispersions/slurries

Post-slabbing only (extrusions, preforms, molded goods, etc.)

- Liquid soap lubricants
- Emulsified wax
- Formulated mold lubricants
- Potassium stearate/water dispersions

- **Water-dispersible, pigmented**

- For use on air-cooled systems for **slab stock**
- Clay and calcium carbonate dispersions
- Dry powdered dips, calcium carbonate and clay
- Dust-free release coating

Products/Applications

For Slab Stocks and Post-Slabbing Operations:

Floatable, non-pigmented:

Chemical Type:

Quikote® (#18787)	Zinc stearate
Quikote® LD (#18795)	
Quikote® LE/LD (#13781)	
Quikote® C-LM (#18791)	Calcium stearate
Quikote® C-LM/LD (#18792)	

Water-dispersible, non-pigmented:

Wet zinc® (#15290)	Zinc stearate
Hydrozinc™ (#12483)	
Zincote® (#15654)	
Hallcote® ZS 50/50 (#15623)	
Quikote® CLM-WET (#18794)	Calcium stearate
Hallcote® CaSt 50 (#12363)	
Quikote® C/CA (#18666)	Liquid soap lubricant, dust-free

Water-dispersible, pigmented:

Slab stock only

Hallcote® 780 (#14327)	Clay-based slurries
Hallcote® 780-LD (#12355)	
Hallcote® 910-LF (#14339)	
Hallcote® 910-LF-LD (#14340)	
Hallcote® ES-10 (#14349)	
Hallcote® DPD-547 (#12896)	Calcium carbonate dry powder
Hallcote® DPD-557 (#12364)	
Hallcote® DPD-567 (#12895)	
Hallco® DF-699 (#13690)	Dust-free release coating

Post-slabbing (extrusions, preforms, molded goods, etc.)

Water-dispersible, non-pigmented:

Hallco® Lube (#12300)	Liquid soap lubricants
Glyso-lube® (#12180)	
ORC 222-LG (#13368)	Emulsified wax
Mold lubricant™ 426 (#13137)	Formulated mold lubricants
Silrex® S-4 (#14134)	
Rexanol™ (#13776)	Potassium stearate

Quikote[®], Quikote[®] LD and Quikote[®] LE/LD

Non-Pigmented, Floatable, Zinc Stearate Dispersions

Product Description

Quikote[®] is a smooth white paste of zinc stearate formulated to give an immediate waterproof anti-stick coating to rubber stock. Quikote[®] LD is a lower dusting version. Quikote[®] LE/LD is a lower alcohol and lower dusting version of this zinc stearate coating.

Application

- Designed for water-cooled takeaway systems; can be applied before or after water cooling
- Good for agitator, recirculator or spray systems
- Melt temperature 120°C, fully incorporates in rubber compound when molded

Special Features

- Fast drying, won't wash off
- Low foaming
- No interference with molding operations
- Mixes well in water

Recommended Use Level

Suggested use is a 3–10 percent dilution in agitated tanks or a 2-inch layer in non-agitated tanks.

Typical Properties

	Quikote [®]	Quikote [®] LD	Quikote [®] LE/LD
Appearance	Uniform White Dispersion	Uniform White Dispersion	Uniform White Dispersion
Specific Gravity	1.04	1.0	0.95
pH (10% Solution)	7.5	9.5	9.5
% Solids	30	30	29

Quikote® C-LM and Quikote® C-LM/LD

Non-Pigmented, Floatable, Low-Melting Calcium Stearate Dispersion

Product Description

Quikote® C-LM and Quikote® C-LM/LD are proprietary formulations of low melt calcium stearate, which gives an immediate waterproof, anti-stick coating to rubber sheet stock and preforms. Quikote® C-LM/LD is a lower dusting version.

Application

- Recommended for applications needing similar low-melt stearate properties like zinc stearate
- Designed for water-cooled takeaway systems
- Good for agitator, recirculator or spray systems
- Melt temperature 130°C, fully incorporates in rubber compound when molded

Special Features

- Contains no heavy metals
- Fast drying, won't wash off
- Can be applied before or after water cooling
- Will not interfere with molding operations and in most cases enhances the release
- Can be used on preforms or takeaway units

Recommended Use Level

Suggested use is a 3–10 percent dilution in agitated tanks, or a 2-inch layer in non-agitated tanks.

Typical Properties

	Quikote® C-LM	Quikote® C-LM/LD
Appearance	Uniform White Dispersion	Uniform White Dispersion
Specific Gravity	0.9	0.9
pH (10% Solution)	7.7	8.2
% Solids	26	25

Wet zinc, hydrozinc zincote, Hallcote® ZS 50/50

Non-Pigmented, Water Dispersible, Zinc Stearate Dispersions

Product Description

These zinc stearate products are blended with special surfactants that allow them to remain evenly dispersed in water when diluted to the recommended solids level.

Application

- Designed for air-cooled takeaway systems
- Can be used for compression, transfer and injection molding
- Melt temperature 120°C, fully incorporates in rubber compound when molded

Special Features

- Excellent release coatings
- Water soluble, evenly dispersible in varying proportions
- Low-dusting, even coating

Recommended Use Level

Suggested use is a 3–10 percent dilution in agitated tanks.

Typical Properties

	Wet Zinc	Hydrozinc	Zincote	Hallcote® ZS 50/50
Appearance	Uniform White Dispersion	Cream Dispersion	Uniform White Dispersion	Uniform White Dispersion
Specific Gravity	0.85	0.84	0.87	1.03
pH (10%Solution)	7.8	7.8	9.6	10.0
% Solids	26.2	28.0	29.0	45.0

Quikote® C-LM Wet and Hallcote® CaSt 50

Non-Pigmented, Water Dispersible, Calcium Stearate Dispersions

Product Description

These calcium stearate products have been formulated with specific surfactants that allow them to remain evenly dispersed in water when diluted to the recommended solids level.

Application

- Designed for air-cooled takeaway systems
- Can be used for compression, transfer and injection molding when calcium stearate is acceptable
- Melt temperature 130°C, fully incorporates in rubber compound when molded

Special Features

- Excellent release coatings
- Water soluble, evenly dispersible in varying proportions
- Low-dusting, even coating

Recommended Use Level

Suggested use is 3–10 percent dilution in water, depending on individual operating conditions.

Typical Properties

	Quikote® C-LM-Wet	Hallcote® CaSt 50
Appearance	White Dispersion	White Dispersion
Specific Gravity	0.99	8.50
pH (10% Solution)	9.5	8.8
% Solids	23	50

Quikote® C/CA

Specialty Release Dispersion, Water-Dispersible

Product Description

This specially formulated dispersion product has been designed with specific surfactants that remain evenly dispersed in water when diluted to the recommended solids level.

Applications/Features

- Works well on air-cooled takeaway systems
- Provides excellent release combined with a non-sliding surface so rubber will not slip during transportation and will process easily in post-mixing operations
No interference with molding operations when calcium stearate is acceptable
- Soluble/dispersible in water in varying proportions
- No dusting; coats evenly
- No zinc
- No inorganic fillers

Recommended Use Level

Suggested use is 3–5 percent dilution in water, depending on individual operating conditions.

Typical Properties

Quikote® C/CA	
Appearance	Slurry
Specific Gravity	0.99
pH (10% Solution)	10.5
% Solids	40

Hallcote® 780, 780-LD, 910-LF, 910-LF-LD, ES-10

Pigmented, Water Dispersible, Clay-Based Slurry

Product Description

These clay-based slurry slab dips are formulated with specific surfactants that effectively coat a wide range of elastomers and provide a barrier that prevents cohesion between adjacent slab surfaces.

Applications/Features

- **Hallcote® 780** is the workhorse slab dip - provides excellent release, especially on highly plasticized or very hydrophobic compounds
- **Hallcote® 780-LD** has all the same properties of 780 but with very low dusting
- **Hallcote® 910-LF** has excellent low foaming and provides release on soft butyls that many other dips cannot
- **Hallcote® 910-LF-LD** has all the same properties of 910-LF but with very low dusting
- **Hallcote® ES-10**, "environmentally safe," no zinc-containing raw materials, extremely low heavy metals content

Recommended Use Level

Suggested use is 3–10 percent dilution in water, depending on individual operating conditions.

Typical Properties

	Hallcote® 780	Hallcote® 780-Ld	Hallcote® 910-Lf	Hallcote® 910-Lf-Ld	Hallcote® Es-10
Appearance	Cream Slurry	—————→			
Spec. Grav.	1.36	1.29	1.29	1.22	1.37
pH (10% Sol'n)	7.5	8.0	7.5	8.0	8.0
% Solids	50	47	50	47	50

Hallcote® DPD-547, DPD-557, and DPD-567

Calcium Carbonate-Based Dry Powders

Product Description

Dry Powder Slab Dips formulated with superior surfactant and release technology.

Applications/Features

- Excellent coverage of a broad range of elastomers, such as EPDM, NR, SBR, CPE, CSM, CR, FKM, Butyl, Halobutyl, etc.
- Excellent dispersibility in cold water
- Excellent drying characteristics
- Excellent re-dispersibility - does not require severe agitation to maintain even suspension of material
- Calcium carbonate-based material - does not contain clay
- Not sensitive to solids level fluctuations

Environmental Health & Safety Benefits

- Zinc content well below Environmental Protection Agency (EPA) reportable level*
- Alpha quartz silica content well below EPA reportable level*
- Does not contain talc

* This must be coordinated with individual local regulations and guidelines.

Handling Characteristics

- 100 percent free-flowing powder - no freight costs for shipping water
- Dry powder dips packaged in 50-lb. bags - no drum disposal problems

Recommended Use Level

Suggested use is 3–5 percent dilution in water, depending on individual operating conditions

Typical Properties

	Hallcote® DPD-547	Hallcote® DPD-557	Hallcote® DPD-567
Appearance	Powder	Powder	Powder
pH (3% Sol.)	9.0	9.5	9.0
% Solids	98	97.5	98

Hallco® DF-699

Dust-Free Release Coating

Product Description

Hallco® DF-699 is a dust-free release coating that mixes easily with water and allows for quick drying. Hallco® DF-699 works exceptionally well on very soft elastomers and those which tend to cold flow.

Applications/Features

- Disperses easily into water
- Works well on a variety of elastomers
- Provides a dust-free coating to the rubber stocks; even, clear or slightly hazy
- Dries quickly
- Does not build up on the process equipment and therefore cuts down clean up and maintenance time
- Does not create problems with slippage or feeding process equipment

Recommended Use Level

Suggested use level is 3–6 percent dilution in water, depending on individual operating conditions

Typical Properties

Hallco® DF-699	
Appearance	Uniform Green Paste
Specific Gravity	1.023
pH (10% Solution)	10
% Solids	28

Rexanol™

Potassium Stearate Dispersion

Product Description

Potassium stearate dispersion release coating that is especially suited for FDA* and medical grade rubber compounds.

Applications/Features

- Latex gloves - mandrels
- Non-dusting - will absorb into stock during use

Recommended Use Level

Suggested use is 3–5 percent dilution in water, depending on individual operating conditions.

* FDA listing is the responsibility of the individual applying the Rexanol™

Typical Properties

Rexanol™	
Specific Gravity	0.95
pH (10% Solution)	10.9
% Solids	20.8

Hallco® Lube and Glyso-Lube

Clear, Soap-Based Release Coatings

Product Description

These products are liquid soap release coatings that provide excellent release for downstream rubber processing, especially on cold flow stocks.

Applications/Features

- Excellent for preforms and extrudates such as rubber window seals and bar-well slugs
- Clear liquid lubricant, no fillers added
- Miscible in water in varying proportions

Recommended Use Level

Suggested use is 3–5 percent dilution in water, depending on individual operating conditions.

Typical Properties

	Hallco® Lube	Glyso-Lube
Appearance	Green Clear Liquid	Straw-Colored Liquid
Specific Gravity	1.02	1.01
pH (10% Solution)	11.0	10.0
% Solids	30	21

Mold Lubricant™ 426, SILREX® S-4

Mold Releases

Product Description

Water-based mold lubricants and release coatings

Special Features

- Mold lubricant™ 426 is a non-silicone mold lubricant - can be used similarly to Ucon® fluids
- Silrex® S-4 is a compounded silicone mold release agent

Recommended Use Level

Suggested use is 3–5 percent dilution in water, depending on individual operating conditions.

Typical Properties

	Mold Lubricant 426	Silrex® S-4
Appearance	Clear	White Emulsion
Specific Gravity	1.05	1.007
pH (10% Solution)	9.8	8.5
% Solids	32	31.3

ORC 222-LG Organic Release Coating

Product Description

ORC 222-LG is a proprietary formulation of an emulsified wax used in anti-static applications requiring full incorporation into the rubber compound.

Applications/Features

- Rubber-to-metal bonding - will not affect adhesion, hose fabrication
- Especially good as a release coating for hose stock
- Water-dispersible
- Fatty ester - wax-like emulsion
- Contains no fillers, silicones, zinc stearate or soaps

Recommended Use Level

Suggested use is 3–10 percent dilution in water, depending on individual operating conditions

Typical Properties

ORC 222-LG	
Specific Gravity	1.00
pH (10% Solution)	7.8
% Solids	15.0