

VANFRE[®] PROCESSING AIDS



High performance solutions
for your processing needs



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A Wholly Owned Subsidiary of R.T. Vanderbilt Holding Company, Inc.

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VANFRE® Processing Aids

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LUBRICANTS series is a combination of amides, ester and metal salts which work tremendously well as internal and external lubricants, as such, they provide surface improvements for molded and extruded or calendered rubber goods. This range is also popular for their effect on dispersing filler and other compound ingredients.

VANFRE L16
VANFRE L20
VANFRE L22
VANFRE L42
VANFRE L79

6-7

FLOW IMPROVER series is a range of metal soaps of natural fatty acids, specially designed to improve the downline-processing behavior of standard and special elastomers.

VANFRE F44
VANFRE F50
VANFRE F60
VANFRE F60T

8-9

TACKIFIER/HOMOGENIZER series offers a range of unique compatibilizing agents, employed in the effective blending and homogenization of various grade of polymers.

VANFRE B40
VANFRE B60

10-11

HIGH PERFORMANCE series give specialty solutions for those harder to solve processing problems.

VANFRE AP-2
VANFRE AP-2 SPECIAL
VANFRE HYP
VANFRE UN
VANFRE VAM

LUBRICANTS General Purpose

| Description | Properties | | | | |
|---|-----------------|-------------------------------------|--------------------|--------------|-----------|
| | Appearance | Specific Gravity, g/cm ³ | Dropping Point, °C | Packaging | Dosage |
| VANFRE® L16 Processing Aid Mixture of Fatty Acid Soaps and Amides | Beige Pastilles | 0.98 | 103 | 25 kg PE bag | 1 - 5 phr |
| VANFRE L20 Fatty Acid Ester Derivatives | White Pastilles | 1.10 | 60 | 25 kg PE bag | 1 - 5 phr |
| VANFRE L22 Aliphatic Fatty Acid Ester | White Pastilles | 0.95 | 60 | 25 kg PE bag | 1 - 5 phr |
| VANFRE L42 Blend of Fatty Acid Derivatives | Beige Pastilles | 0.93 | 88 | 25 kg PE bag | 1 - 5 phr |
| VANFRE L79 Fatty Acid Ester and Polymer Derivative | White Pastilles | 1.07 | 60 | 25 kg PE bag | 1 - 2 phr |

| Function and Application | Process Enhancement | Sequence of Addition | Suitable For: **Very Good *Good | Equivalent |
|--|--|--|---|--|
| <ul style="list-style-type: none"> Process additive for most kinds of polymers, excellent effect on mold flow and release Improves surface finish of vulcanizates Give stabilizing properties in CR blends | <ul style="list-style-type: none"> Extrusion Calendering Injection molding Molding (release) | With filler(s) and/or small ingredients | NR** SBR** EPDM** IIR* NBR* | WB 16 Dispergator FL Ultra Lube 160 Deoflow S Aflux 16 |
| <ul style="list-style-type: none"> Compatible with all standard polymers Dispersing agent for highly active white fillers and other powder ingredients High plasticizing effect in dry compounds Low peroxide demand | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion Calendering Molding (release) | With filler(s) and/or small ingredients | NR** SBR** EPDM** CR** BR* NBR* | WB 212 Deosol H Ultra Lube 200 Aflux 12 |
| <ul style="list-style-type: none"> Highly effective process additive and mold release agent for special polymer (NBR, CSM, and ACM) Due to high temperature stability it can be used in UHF, salt bath and fluid bed vulcanization Very effective flow improver and release agent in NBR and HNBR products Low peroxide demand | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion & Calendering Injection molding & molding (release) | With filler(s) and/or small ingredients at last mixing stage | NBR** SBR** NR** EPDM** HNBR** XNBR** CSM** FKM** CR* | WB 222 Aflux 54 Ultra Lube 220 Deoflow 821 |
| <ul style="list-style-type: none"> Process additive and mold release agent for the use in nearly all polymers and filler combinations Particularly effective in the extrusion process Excellent filler dispersion leads to high uniformity Low peroxide demand | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion & Calendering Molding (release) Highly effective in EPDM compound | With filler(s) and/or small ingredients | NR** SBR** IIR** EPDM** NBR** HNBR** CR** | WB 42 Aflux 42 Ultra Lube 420 Deoflow A |
| <ul style="list-style-type: none"> Highly effective process additive for special polymers such as FKM and EVA Excellent flow and release effect in fluorinated and acrylate rubber Low volatility, suitable for use where post curing required Improves filler dispersion of FKM compounds | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion Injection molding Molding (release) | With filler(s) and/or small ingredients at last mixing step | FKM** ACM** H-NBR* X-NBR* | WS 280 HT 290 Ultra Lube 790 |

FLOW IMPROVER General Purpose

| Description | Properties | | | | | |
|--|-----------------------|-------------------------------------|--------------------|-----------------|--------------|-----------|
| | Appearance | Specific Gravity, g/cm ³ | Dropping Point, °C | Zinc Content, % | Packaging | Dosage |
| VANFRE® F44 Processing Aid Fatty Acid Derivatives with Metal Soap | Pale Yellow Pastilles | 1.10 | 98 | 8.5 | 25 kg PE bag | 1-3 phr |
| VANFRE F50 Zinc Soap of Unsaturated Fatty Acids | Beige Pastilles | 1.10 | 103 | 10.5 | 25 kg PE bag | 1 - 5 phr |
| VANFRE F60 Blend of Fatty Acids with Zinc Soaps | Beige Pastilles | 1.15 | 90 | 8.5 | 25 kg PE bag | 1 - 5 phr |
| VANFRE F60T Mixture of Fatty Acids with Zinc Soaps | Beige Pastilles | 1.10 | 90 | 13.5 | 25 kg PE bag | 1 - 5 phr |

| Function and Application | Process Enhancement | Sequence of Addition | Suitable For: **Very Good *Good | Equivalent |
|---|--|--|--|---|
| <ul style="list-style-type: none"> Excellent flow promoter for compounds with high level of white fillers (Silica, CaCO₃, Clay, etc.) Process additive for non-halogenated polymers Improves dispersion of fillers (especially minerals filler) and batch-to-batch uniformity Decreases tendency of silica reagglomeration Complies with 177.2600 (FDA) | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion Injection molding Molding (release) | With filler(s) and/or small ingredients | NR** SBR** EPDM** NBR** CR** | EF 44 Ultra Flow 440 |
| <ul style="list-style-type: none"> Reduces compound viscosity and gives better flow properties with internal lubrication Not suitable for halogen-containing elastomers Complies with 177.2600 (FDA) | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion & Calendering Molding (release) | With filler(s) and/or small ingredients | NR** SBR** BR** IIR** NBR** | A 50 Aktiplast PP Ultra Flow 500 Dispergum R |
| <ul style="list-style-type: none"> Reduces compound viscosity and gives better flow properties with internal lubrication Suitable for use in softer compounds or compounds with low mixing temperatures Complies with 177.2600 (FDA) | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion Calendering | With filler(s) and/or small ingredients at last mixing stage | NR** SBR** BR** IIR* NBR* | A 60 Ultra Flow 600 |
| <ul style="list-style-type: none"> Reduces compound viscosity and gives better flow properties with internal lubrication Suitable for use in softer compounds or compounds with low mixing temperatures Complies with 177.2600 (FDA) | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion Calendering | With filler(s) and/or small ingredients | NR** SBR** BR** IIR* NBR* | A 60DH Aktiplast T Ultra Flow 600T Dispergum T |

TACKIFIER / HOMOGENIZER

| Description | Properties | | | | |
|---|----------------------|-------------------------------------|--------------------|--------------|------------|
| | Appearance | Specific Gravity, g/cm ³ | Dropping Point, °C | Packaging | Dosage |
| VANFRE® B40 Processing Aid Mixture of Dark Aromatic Hydrocarbon Resins | Dark Brown Pastilles | 1.06 | 106 | 25 kg PE bag | 4 - 15 phr |
| VANFRE B60 Mixture of Light Colored Hydrocarbon Resins | Yellow Pastilles | 0.97 | 100 | 25 kg PE bag | 2-5 phr |

| Function and Application | Process Enhancement | Sequence of Addition | Suitable For: **Very Good *Good | Equivalent |
|--|--|---|---------------------------------------|---|
| <ul style="list-style-type: none"> Improves homogeneity of polymer blends Improves the processing behavior in internal mixers, open mills and during calendaring Provide good compound tack and high green tack best suited for dark compound | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion & Calendering | At beginning of mix cycle with polymer(s) | NR** BR** CR** IIR* | 40 MS Ultra Blend 4000 Rhenosin 145 Homogenisator 501D |
| <ul style="list-style-type: none"> Same effect as VANFRE B40 but intended for the use with light colored compounds Complies with 177.2600 (FDA) | <ul style="list-style-type: none"> Mixing (faster incorporation) Extrusion & Calendering | At beginning of mix cycle with polymer(s) | NR** BR** CR** IIR* | 60 NS Ultra Blend 6000 Rhenosin 260 |

HIGH PERFORMANCE

| Description | Properties | | | | |
|---|---------------------------------------|-------------------------------------|----------------------|-----------------|--------------------|
| | Appearance | Specific Gravity, g/cm ³ | Melting Point, °C | Zinc Content, % | Acid Number |
| VANFRE® AP-2 Processing Aid Proprietary zinc and fatty acid blend | Off-white to light tan flakes | 0.98 | 85, minimum, Initial | 1.8 - 2.5 | – |
| VANFRE AP-2 SPECIAL Zinc Soap of Unsaturated Fatty Acids | Off-white to light tan flakes | 0.98 | 85, minimum, Initial | 1.8 - 2.5 | – |
| VANFRE HYP Proprietary blend of fatty alcohol and ester blend | Off-white to light tan friable flakes | 0.97 | 90, minimum, Final | – | – |
| VANFRE UN Fatty alcohol phosphate | Clear pale yellow liquid | 0.96 - 1.00 | – | – | 260 - 280 mg KoH/g |
| VANFRE VAM Complex organic phosphate ester | Off-white to light | 0.97 | – | – | 96 - 112 mg KoH/g |

| Function and Application | High Performance Property | Dosage | Packaging | Suitable For: **Very Good *Good |
|---|--|---------------|---------------------------------|--|
| <ul style="list-style-type: none"> Processing aid in natural and synthetic rubbers Reduces compound plasticity, improves mold flow and release | <ul style="list-style-type: none"> Has little adverse effect on optimum physical properties in all polymers and cure systems | 2 - 4 phr | 125 lb Fiber Drum | NR** SBR** NBR** EPDM** IIR** HNBR** CR* FKM* |
| <ul style="list-style-type: none"> Processing aid in natural and synthetic rubbers Reduces compound plasticity, improves mold flow and release Has little adverse effect on optimum physical properties | <ul style="list-style-type: none"> VANFRE AP-2 SPECIAL provides the same high performance but is designed for FDA compliant applications | 2 - 4 phr | 125 lb Fiber Drum | NR** SBR** NBR** EPDM** IIR** HNBR** CR* FKM* |
| <ul style="list-style-type: none"> Processing aid for rubber to reduce plasticity, improve mold flow and release, without adversely affecting physical properties FDA compliant for FDA 21 CFR Sections 175.300, 177.1210 | <ul style="list-style-type: none"> Developed for Hypalon® CSM applications and improves performance in CPE | 1 - 3 phr | 125 lb Fiber Drum | CSM** CPE** CR* |
| <ul style="list-style-type: none"> For ethylene/acrylic elastomers for improving release from mill rolls, molds and other processing equipment | <ul style="list-style-type: none"> Improves metal release in acrylic elastomers | 2 - 4 phr | 40 lb Pail or 425 lb Metal Drum | AEM** ACM* |
| <ul style="list-style-type: none"> Processing aid for Vamac®, ethylene/acrylic elastomer and for evaluation in other solvent-resistant polymers | <ul style="list-style-type: none"> Developed for Vamac® AEM applications and excellent performance in ACM and ECO | 0.5 - 1.5 phr | 50 lb Fiber Box | AEM** ACM** ECO** |

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