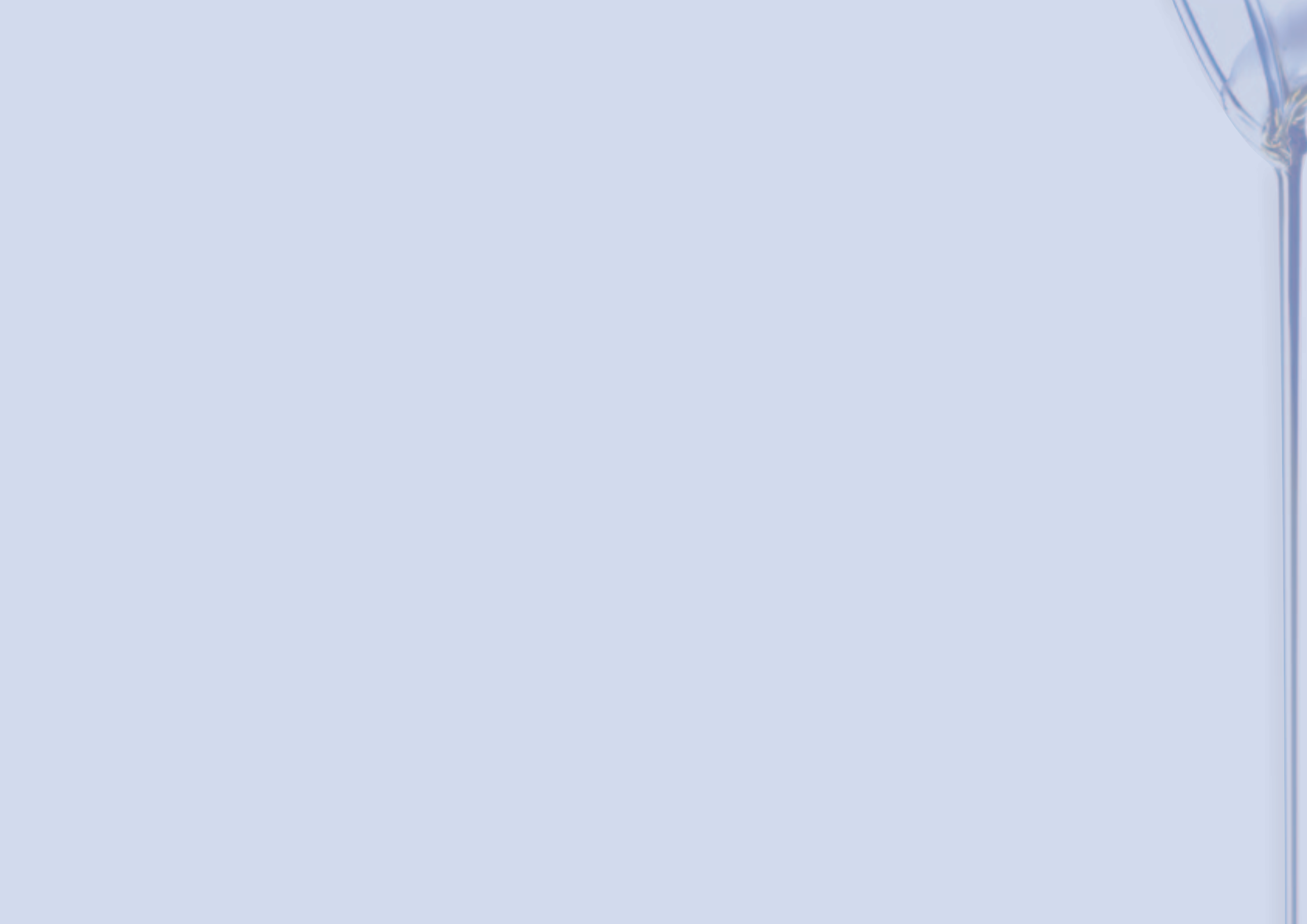


# Nonionic Surfactants

KOLB





# Users of Surfactants like to see results

Dear Reader,

The tailor-made production of non-ionic surfactants is Kolb's core competence. This brochure will help you to find our standard products for surfactant related industries.

Our surfactants convince by their quality and functionality. Decades of experience in the most diverse markets are another basis of our success. Kolb surfactants will help to optimise your washing and cleaning formulations and to design new textile auxiliaries as well as recipes used for technical industries.

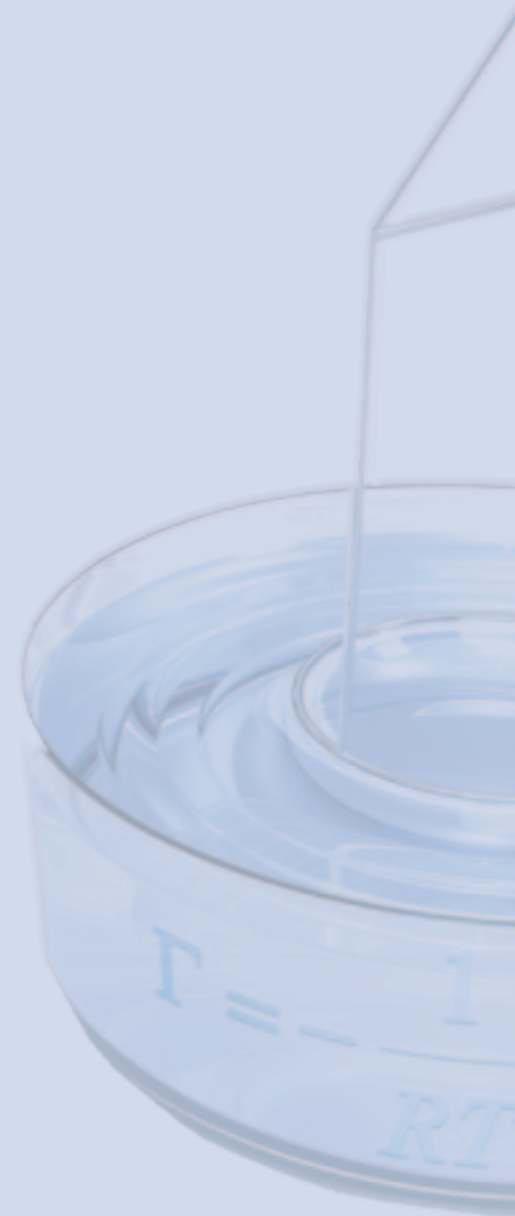
The focus on customer care, high quality, flexibility, speed and innovation form the heart of our business awareness.

This information is based on our current knowledge and is only meant to indicate general notes of our products and their possible uses. It does not constitute a warranty and the customer should satisfy itself of the suitability of the content for its own particular purpose.

Health and safety advice on the products is given in the individual product safety datasheets, available on request.

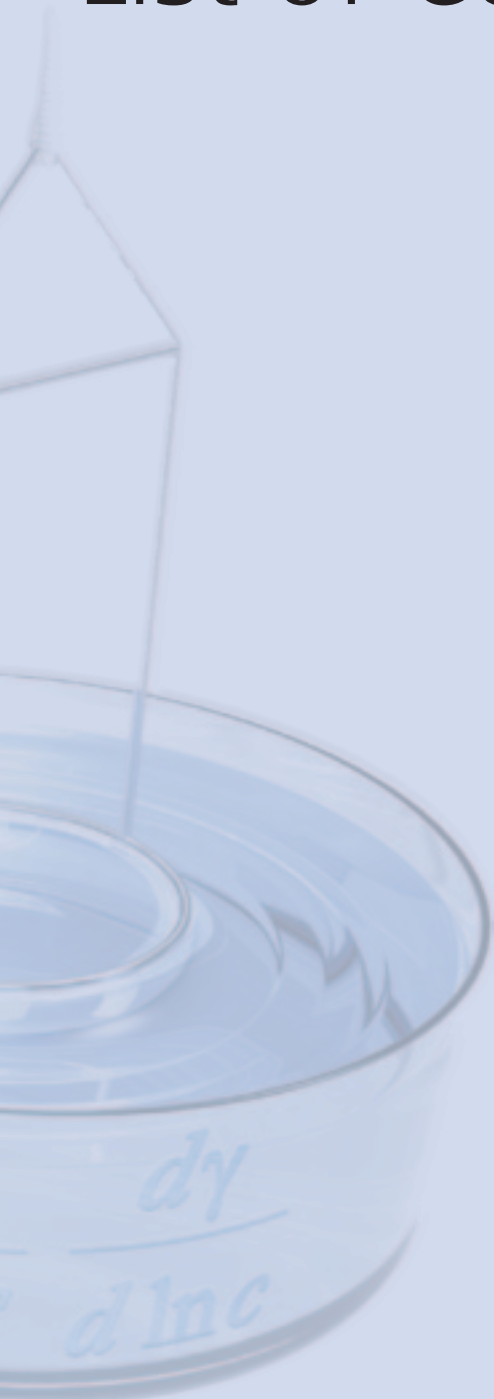
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# Fatty alcohol ethoxylates, natural, linear C-chain

Product range Imbentin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, HET I&I cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-AG/124S/020	POE (2) C12 - C14 Alcohol	2.0	liquid	68439-50-9	280	>99.5		<b>38</b>		6.0	◆	◆	✓		✓				✓
Imbentin-AG/124S/030	POE (3) C12 - C14 Alcohol	3.0	liquid	68439-50-9	320	>99.5		<b>53</b>		8.1	◆	◆	✓			✓		✓	✓
Imbentin-AG/124S/040	POE (4) C12 - C14 Alcohol	4.0	liquid	68439-50-9	370	>99.5		62	<b>74(D)</b>	9.5	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-AG/124S/045	POE (5) C12 - C14 Alcohol	4.5	liquid	68439-50-9	390	>99.5		<b>68</b>		10.1	◆	◆	✓		✓			✓	
Imbentin-AG/124S/060	POE (6) C12 - C14 Alcohol	6.0	liquid	68439-50-9	460	>99.5	<b>44</b>	76		11.5	◆	◆	✓					✓	✓
Imbentin-AG/124S/065	POE (7) C12 - C14 Alcohol	6.5	liquid	68439-50-9	480	>99.5	<b>48</b>	77		11.9	◆	◆	✓						
Imbentin-AG/124S/070	POE (7) C12 - C14 Alcohol	7.0	liquid	68439-50-9	500	>99.5	<b>55</b>	78		12.3	◆	◆	✓	✓				✓	
Imbentin-AG/124S/070 90%	POE (7) C12 - C14 Alcohol	7.0	liquid	68439-50-9	500	>89.0	<b>55</b>	77		11.9	◆	◆	✓	✓				✓	✓
Imbentin-AG/124S/075	POE (7) C12 - C14 Alcohol	7.5	liquid	68439-50-9	520	>99.5	<b>63</b>			12.5	◆	◆	✓	✓					
Imbentin-AG/124S/080	POE (8) C12 - C14 Alcohol	8.0	liquid	68439-50-9	550	>99.5	<b>71</b>	82		12.9	◆	◆	✓	✓	✓	✓			✓
Imbentin-AG/124S/080 90%	POE (8) C12 - C14 Alcohol	8.0	liquid	68439-50-9	550	>89.0	<b>71</b>	82		12.9	◆	◆	✓	✓	✓			✓	✓
Imbentin-AG/124S/090	POE (9) C12 - C14 Alcohol	9.0	liquid	68439-50-9	590	>99.0	<b>75</b>	84		13.5	◆	◆	✓						
Imbentin-AG/124S/110 90%	POE (11) C12 - C14 Alcohol	11.0	liquid	68439-50-9	680	>89.0		86	<b>65 (C)</b>	14.3	◆	◆	✓						✓
Imbentin-AG/124S/200 (1)	POE (20) C12 - C14 Alcohol	20.0	solid	68439-50-9	1070	>99.0				16.5	◆		✓						
Imbentin-AGM 90%	POE (8) C12 - C14 Alcohol	7.5	liquid	68439-50-9	520	>89.0	60	80		12.5			✓						
Imbentin-AG/124PG/020	POE (2) C12 - C16 Alcohol	2.0	liquid	68551-12-2	270	>99.9		<b>38</b>		6.2	◆		✓						
Imbentin-AG/124PG/030	POE (3) C12 - C16 Alcohol	3.0	liquid	68551-12-2	310	>99.9		52	<b>61 (F)</b>	8.0	◆		✓			✓			
Imbentin-AG/124PG/050 (2)	POE (5) C12 - C16 Alcohol	5.0	liquid	68551-12-2	400	>99.8		63	<b>72 (F)</b>	10.0	◆		✓						
Imbentin-AG/124PG/070	POE (7) C12 - C16 Alcohol	7.0	liquid	68551-12-2	490	>99.8	<b>56</b>	79		12.2	◆		✓						
Imbentin-AG/168S/020	POE (2) C16 - C18 Alcohol	2.0	solid	68439-49-6	350	>99.5			<b>67 (D)</b>	5.0	◆	◆	✓	✓	✓			✓	
Imbentin-AG/168S/035	POE (4) C16 - C18 Alcohol	3.5	solid	68439-49-6	410	>99.5		<b>63</b>		8.0	◆	◆						✓	
Imbentin-AG/168S/060	POE (6) C16 - C18 Alcohol	6.0	solid	68439-49-6	520	>99.5		<b>77</b>		10.0	◆	◆	✓	✓	✓			✓	

# Fatty alcohol ethoxylates, natural, linear C-chain

Product range <b>Imbentin™</b>	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 2.5 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&H cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-AG/168S/080	POE (8) C16 - C18 Alcohol	8.0	solid	68439-49-6	610	>99.5	55	<b>86</b>		10.5	◆	◆	✓	✓				✓	
Imbentin-AG/168S/100	POE (10) C16 - C18 Alcohol	10.0	solid	68439-49-6	700	>99.5	<b>69</b>	88		12.5	◆	◆	✓					✓	
Imbentin-AG/168S/110	POE (11) C16 - C18 Alcohol	11.0	solid	68439-49-6	740	>99.5	<b>77</b>	90		13.0	◆	◆	✓	✓				✓	
Imbentin-AG/168S/140	POE (14) C16 - C18 Alcohol	14.0	solid	68439-49-6	870	>99.5			<b>69 (C)</b>	14.0	◆	◆	✓	✓	✓		✓	✓	
Imbentin-AG/168S/150	POE (15) C16 - C18 Alcohol	15.0	solid	68439-49-6	920	>99.5			<b>72 (C)</b>	14.5	◆	◆		✓		✓	✓	✓	
Imbentin-AG/168S/180 G	POE (18) C16 - C18 Alcohol	18.0	pellets	68439-49-6	1050	>99.0			<b>75 (C)</b>	15.0	◆	◆	✓	✓		✓	✓	✓	
Imbentin-AG/168S/200	POE (20) C16 - C18 Alcohol	20.0	solid	68439-49-6	1140	>99.5			<b>76 (C)</b>	15.4	◆	◆	✓	✓		✓		✓	
Imbentin-AG/168S/200 G	POE (20) C16 - C18 Alcohol	20.0	pellets	68439-49-6	1140	>99.0			<b>76 (C)</b>	15.4	◆	◆	✓	✓				✓	
Imbentin-AG/168S/250	POE (25) C16 - C18 Alcohol	25.0	solid	68439-49-6	1360	>99.5			<b>78 (C)</b>	16.1	◆	◆	✓	✓		✓	✓	✓	
Imbentin-AG/168S/250 G	POE (25) C16 - C18 Alcohol	25.0	pellets	68439-49-6	1360	>99.0			<b>78 (C)</b>	16.1	◆	◆	✓	✓	✓	✓	✓	✓	
Imbentin-AG/168S/250 P	POE (25) C16 - C18 Alcohol	25.0	powder	68439-49-6	1360	>99.5			<b>78 (C)</b>	16.1	◆	◆	✓	✓	✓	✓	✓	✓	
Imbentin-AG/168S/250 PEG	POE (25) C16 - C18 Alcohol	25.0	solid	68439-49-6	1600	>99.0			<b>78 (C)</b>	16.0	◆		✓	✓	✓	✓	✓	✓	
Imbentin-AG/168S/300S G	POE (30) C16 - C18 Alcohol	30.0	pellets	68439-49-6	1600	>98.0			<b>78 (C)</b>	16.5	◆	◆	✓	✓	✓	✓	✓	✓	
Imbentin-AG/168S/300S P	POE (30) C16 - C18 Alcohol	30.0	powder	68439-49-6	1600	>98.0			<b>78 (C)</b>	16.5	◆	◆	✓	✓	✓	✓	✓	✓	
Imbentin-AG/168S/360 I G	POE (36) C16 - C18 Alcohol	36.0	pellets	68439-49-6	1850	>99.5			<b>76 (N)</b>	17.2	◆	◆	✓	✓					
Imbentin-AG/168S/500 G	POE (50) C16 - C18 Alcohol	50.0	pellets	68439-49-6	2450	>99.0				17.9	◆	◆	✓	✓					✓
Imbentin-AG/168S/500 P	POE (50) C16 - C18 Alcohol	50.0	powder	68439-49-6	2450	>99.0				17.9	◆	◆	✓	✓					✓
Imbentin-AG/168S/800 G	POE (80) C16 - C18 Alcohol	80.0	pellets	68439-49-6	3800	>99.0				20.0	◆	◆	✓	✓				✓	
Imbentin-AG/168S/800 P	POE (80) C16 - C18 Alcohol	80.0	powder	68439-49-6	3800	>99.0				20.0	◆	◆	✓	✓					

## Fatty alcohol ethoxylates, natural, linear C-chain, unsaturated

Product range <b>Imbentin™</b>	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&I cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-POA/020 5055	POE (2) Cetyl Oleyl Alcohol	2.0	liquid	68920-66-1	350	>99.5		<b>33</b>		5.0	◆	✓	✓	✓			✓	✓	
Imbentin-POA/050 5055	POE (5) Cetyl Oleyl Alcohol	5.0	pasty	68920-66-1	480	>99.5		<b>67</b>		9.0	◆	✓	✓	✓			✓	✓	
Imbentin-POA/050 7075	POE (5) Cetyl Oleyl Alcohol	5.0	liquid	68920-66-1	480	>99.5		<b>66</b>		9.0	◆	✓	✓	✓				✓	
Imbentin-POA/060	POE (6) Cetyl Oleyl Alcohol	6.0	pasty	68920-66-1	520	>99.5		<b>73</b>		10.0	◆	✓	✓				✓	✓	
Imbentin-POA/080 7075	POE (8) Cetyl Oleyl Alcohol	8.0	liquid	68920-66-1	620	>99.5		<b>80</b>		11.5	◆	✓	✓	✓					
Imbentin-POA/080	POE (8) Cetyl Oleyl Alcohol	8.0	pasty	68920-66-1	610	>99.5		<b>83</b>		11.5	◆	✓	✓			✓	✓		
Imbentin-POA/080 90%	POE (8) Cetyl Oleyl Alcohol	8.0	liquid	68920-66-1	610	>89.0	43	<b>82</b>		11.4	◆	✓	✓				✓		
Imbentin-POA/100	POE (10) Cetyl Oleyl Alcohol	10.0	solid	68920-66-1	700	>99.5	<b>70</b>			12.5	◆						✓		
Imbentin-POA/140	POE (14) Cetyl Oleyl Alcohol	14.0	solid	68920-66-1	870	>99.5			<b>66 (C)</b>	14.0	◆		✓				✓		
Imbentin-POA/180	POE (18) Cetyl Oleyl Alcohol	18.0	solid	68920-66-1	1050	>99.5			<b>74 (C)</b>	15.0	◆	✓	✓	✓			✓		
Imbentin-POA/220 E	POE (22) Cetyl Oleyl Alcohol	22.0	solid	68920-66-1	1220	>99.5			<b>75 (C)</b>	15.5	◆		✓						
Imbentin-POA/250 6065 E	POE (25) Cetyl Oleyl Alcohol	25.0	solid	68920-66-1	1360	>99.5			<b>76 (N)</b>	16.1	◆	✓	✓						
Imbentin-POA/310 G	POE (31) Cetyl Oleyl Alcohol	31.0	pellets	68920-66-1	1600	>99.0			<b>78 (C)</b>	17.0	◆	✓	✓				✓		
Imbentin-POA/800 G	POE (80) Cetyl Oleyl Alcohol	80.0	pellets	68920-66-1	3780	>99.0			<b>71 (C)</b>	18.5	◆	✓	✓						

# Fatty alcohol ethoxylates, synthetic, linear C-chain

Product range <b>Imbentin™</b>	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&H cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-AG/810/050	POE (5) C8 - C10 Alcohol	5.0	liquid	71060-57-6	370	>99.5	<b>36</b>	69		11.5	◆	✓				✓			
Imbentin-AG/810/080	POE (8) C8 - C10 Alcohol	8.0	liquid	71060-57-6	500	>99.5	<b>85</b>			14.0	◆	✓						✓	
Imbentin-AG/100/020	POE (2) Decanol	2.0	liquid	26183-52-8	240	>99.5		<b>38</b>		7.2	◆	✓	✓	✓				✓	
Imbentin-AG/100/040	POE (4) Decanol	4.0	liquid	26183-52-8	330	>99.5		<b>60</b>		10.6	◆	✓	✓	✓				✓	
Imbentin-AG/100/35	POE (5) Decanol	5.0	liquid	26183-52-8	370	>99.5	<b>39</b>	69		11.7	◆	✓			✓				✓
Imbentin-AG/100/52	POE (6) Decanol	6.0	liquid	26183-52-8	420	>99.5	<b>52</b>	73		12.6	◆	✓	✓	✓	✓			✓	
Imbentin-AG/100/080	POE (8) Decanol	8.0	liquid	26183-52-8	500	>99.5	<b>84</b>	81		14.0	◆	✓	✓	✓					✓
Imbentin-AG/100/095 80%	POE (10) Decanol	9.5	liquid	26183-52-8	570	>79.0	<b>88</b>			14.5	◆	✓							
Imbentin-AG/100/100	POE (10) Decanol	10.0	pasty	26183-52-8	590	>99.5	85	87	<b>64 (C)</b>	14.5	◆	✓	✓	✓				✓	
Imbentin-AG/100/200	POE (20) Decanol	20.0	solid	26183-52-8	1030	>99.5			<b>74 (C)</b>	17.0	◆	✓							
Imbentin-AG/102/045	POE ( 5) C10 - C12 Alcohol	4.5	liquid	67254-71-1	360	>99.7		<b>66</b>		11.0	◆	✓							
Imbentin-AG/102/050 90%	POE ( 5) C10 - C12 Alcohol	5.0	liquid	67254-71-1	380	>89.0	<b>37</b>			11.5	◆	✓							
Imbentin-AG/124/030	POE (3) C12 - C14 Alcohol	3.0	liquid	68439-50-9	330	>99.5		53	<b>61 (F)</b>	8.0	◆	✓						✓	✓
Imbentin-AG/124/050	POE (5) C12 - C14 Alcohol	5.0	liquid	68439-50-9	420	>99.7		<b>71</b>		10.5	◆	✓	✓	✓					✓
Imbentin-AG/124/075 90%	POE (8) C12 - C14 Alcohol	7.5	liquid	68439-50-9	530	>89.0	<b>61</b>			12.5	◆	✓							
Imbentin-AG/124/150	POE (15) C12 - C14 Alcohol	15.0	solid	68439-50-9	860	>99.5			<b>73 (C)</b>	15.5	◆	✓							✓

# Fatty alcohol ethoxylates, synthetic, branched C-chain

Product range Imbentin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&I cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-OA/020	POE (2) Isooctanol	2.0	liquid	27252-75-1	220	>99.5			<b>51 (D)</b>	8.3	◆	◆							
Imbentin-OA/030	POE (3) Isooctanol	3.0	liquid	27252-75-1	260	>99.5			<b>22 (K)</b>	10.1	◆	◆	✓						
Imbentin-OA/050	POE (5) Isooctanol	5.0	liquid	27252-75-1	350	>99.5		<b>64</b>		12.6	◆	◆	✓					✓	
Imbentin-OA/080	POE (8) Isooctanol	8.0	liquid	27252-75-1	480	>99.5		<b>80</b>		14.6	◆		✓	✓	✓			✓	
Imbentin-OA/150	POE (15) Isooctanol	15.0	solid	27252-75-1	790	>99.5			<b>81 (L)</b>	16.7	◆								
Imbentin-OA/250 70%	POE (25) Isooctanol	25.0	liquid	27252-75-1	1230	>69.0			<b>75 (N)</b>	18.4							✓		
Imbentin-C/91/025	POE (3) C9 - C11 Alcohol	2.5	liquid	68439-46-3	270	>99.8		<b>44</b>		8.1	◆		✓	✓	✓		✓	✓	
Imbentin-C/91/040	POE (4) C9 - C11 Alcohol	4.0	liquid	68439-46-3	340	>99.5		<b>62</b>		10.5	◆	◆	✓	✓				✓	
Imbentin-C/91/35	POE (5) C9 - C11 Alcohol	5.0	liquid	68439-46-3	380	>99.5	<b>36</b>			11.5	◆	◆	✓	✓					
Imbentin-C/91/060	POE (6) C9 - C11 Alcohol	6.0	liquid	68439-46-3	420	>99.5	<b>54</b>	74		12.5	◆	◆	✓	✓		✓		✓	✓
Imbentin-C/91/060 90%	POE (6) C9 - C11 Alcohol	6.0	liquid	68439-46-3	420	>79.0	<b>54</b>			12.5	◆	◆	✓	✓				✓	✓
Imbentin-C/91/080	POE (8) C9 - C11 Alcohol	8.0	liquid	68439-46-3	510	>99.5	<b>80</b>	81		13.5	◆	◆	✓	✓		✓		✓	
Imbentin-C/91/080 85%	POE (8) C9 - C11 Alcohol	8.0	liquid	68439-46-3	510	>84.0	<b>80</b>			13.5	◆	◆	✓	✓				✓	
Imbentin-C/91/85	POE (9) C9 - C11 Alcohol	9.0	liquid	68439-46-3	550	>99.5	<b>86</b>			14.0	◆	◆	✓	✓				✓	
Imbentin-C/91/100	POE (10) C9 - C11 Alcohol	10.0	liquid	68439-46-3	590	>99.5			<b>62 (C)</b>	14.0	◆	◆	✓						
Imbentin-C/91/120	POE (12) C9 - C11 Alcohol	12.0	pasty	68439-46-3	680	>99.5			<b>68 (C)</b>	15.3	◆		✓				✓	✓	
Imbentin-E/100/030	POE (3) Isodecanol	3.0	liquid	78330-20-8	290	>99.5		<b>45</b>		8.5	◆		✓		✓			✓	
Imbentin-E/100/040	POE (4) Isodecanol	4.0	liquid	78330-20-8	330	>99.5		<b>53</b>		10.0	◆		✓		✓				
Imbentin-E/100/050	POE (5) Isodecanol	5.0	liquid	78330-20-8	380	>99.5	24	<b>65</b>		11.5	◆	◆	✓	✓				✓	
Imbentin-E/100/050 95%	POE (5) Isodecanol	5.0	liquid	78330-20-8	380	>94.0		<b>63</b>		11.5	◆	◆	✓	✓				✓	

# Fatty alcohol ethoxylates, synthetic, branched C-chain

Product range <b>Imbentin™</b>	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 2.5 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, HEI I&H cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-E/100/060	POE (6) Isodecanol	6.0	liquid	78330-20-8	420	>99.5	<b>43</b>	71		12.5	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-E/100/070	POE (7) Isodecanol	7.0	liquid	78330-20-8	470	>99.5	<b>55</b>	76		13.0	◆	◆	✓	✓				✓	
Imbentin-E/100/080	POE (8) Isodecanol	8.0	liquid	78330-20-8	510	>99.5	<b>73</b>	80		14.0	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-E/100/080 80%	POE (8) Isodecanol	8.0	liquid	78330-20-8	510	>79.0	<b>65</b>	80		14.0	◆	◆	✓	✓	✓			✓	✓
Imbentin-E/100/090	POE (9) Isodecanol	9.0	liquid	78330-20-8	560	>99.5	<b>82</b>			14.1	◆	◆	✓	✓				✓	✓
Imbentin-E/100/100	POE (10) Isodecanol	10.0	liquid	78330-20-8	600	>99.5	<b>90</b>			14.5	◆	◆	✓					✓	
													✓					✓	
Imbentin-U/030	POE (3) Isoundecanol	3.0	liquid	127036-24-2	300	>99.5		<b>46</b>		8.7	◆		✓	✓					
Imbentin-U/050	POE (5) Isoundecanol	5.0	liquid	127036-24-2	390	>99.5		<b>63</b>		11.2	◆	◆	✓	✓	✓	✓		✓	
Imbentin-U/050 87%	POE (5) Isoundecanol	5.0	liquid	127036-24-2	390	>86.0		<b>63</b>		11.2	◆	◆	✓	✓	✓				
Imbentin-U/060	POE (6) Isoundecanol	6.0	liquid	127036-24-2	430	>99.5	33	<b>70</b>		12.1	◆	◆	✓	✓			✓	✓	✓
Imbentin-U/070	POE (7) Isoundecanol	7.0	liquid	127036-24-2	470	>99.5	<b>53</b>	75		12.8	◆	◆	✓	✓			✓	✓	
Imbentin-U/070 90%	POE (7) Isoundecanol	7.0	liquid	127036-24-2	470	>89.0	<b>53</b>			12.8	◆	◆	✓	✓				✓	
Imbentin-U/080	POE (8) Isoundecanol	8.0	liquid	127036-24-2	510	>99.5	<b>63</b>	78		13.4	◆	◆	✓	✓				✓	
Imbentin-U/080 90%	POE (8) Isoundecanol	8.0	liquid	127036-24-2	510	>89.0	<b>63</b>			13.4	◆	◆	✓	✓				✓	
Imbentin-U/100	POE (10) Isoundecanol	10.0	liquid	127036-24-2	600	>99.5	<b>85</b>	84		14.4	◆	◆	✓	✓				✓	
																		✓	
Imbentin-T/020	POE (2) Isotridecanol	2.0	liquid	9043-30-5	290	>99.5		14	<b>38 (F)</b>	6.0				✓	✓			✓	✓
Imbentin-T/030	POE (3) Isotridecanol	3.0	liquid	9043-30-5	330	>99.5		<b>36</b>		8.1	◆	◆	✓	✓	✓			✓	✓
Imbentin-T/040	POE (4) Isotridecanol	4.0	liquid	9043-30-5	380	>99.5		48	<b>67 (D)</b>	9.0	◆	◆	✓	✓					
Imbentin-T/050	POE (5) Isotridecanol	5.0	liquid	9043-30-5	420	>99.5		<b>58</b>		10.6	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-T/050 85%	POE (5) Isotridecanol	5.0	liquid	9043-30-5	420	>84.0		<b>58</b>		10.6	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-T/060	POE (6) Isotridecanol	6.0	liquid	9043-30-5	460	>99.5		66	<b>76 (D)</b>	11.5	◆	◆	✓	✓		✓		✓	✓
Imbentin-T/060 90%	POE (6) Isotridecanol	6.0	liquid	9043-30-5	460	>89.0			<b>77 (D)</b>	11.5	◆	◆	✓	✓				✓	✓
Imbentin-T/070	POE (7) Isotridecanol	7.0	liquid	9043-30-5	500	>99.5		<b>72</b>		12.2	◆	◆	✓	✓				✓	✓

specified cloud point values are printed in bold

For more detailed information of our documentation, please see page 35.

## Fatty alcohol ethoxylates, synthetic, branched C-chain

Product range <b>Imbentin™</b>	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 2.5g BDG 25 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&I cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-T/070 90%	POE (7) Isotridecanol	7.0	liquid	9043-30-5	500	>89.0		<b>72</b>		12.2	◆	◆	✓	✓				✓	✓
Imbentin-T/080	POE (8) Isotridecanol	8.0	liquid	9043-30-5	550	>99.5	<b>47</b>	76		12.9	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-T/080 85%	POE (8) Isotridecanol	8.0	liquid	9043-30-5	550	>84.0	<b>47</b>			12.9	◆	◆	✓	✓	✓			✓	✓
Imbentin-T/080 90%	POE (8) Isotridecanol	8.0	liquid	9043-30-5	550	>89.0	<b>47</b>	76		12.9	◆	◆	✓	✓	✓	✓		✓	✓
Imbentin-T/090	POE (9) Isotridecanol	9.0	liquid	9043-30-5	600	>99.5	61	<b>80</b>		13.4	◆	◆	✓	✓		✓		✓	✓
Imbentin-T/090 90%	POE (9) Isotridecanol	9.0	liquid	9043-30-5	600	>89.0	61	<b>80</b>		13.4	◆	◆	✓	✓				✓	✓
Imbentin-T/65	POE (10) Isotridecanol	9.5	pasty	9043-30-5	620	>99.5	<b>63</b>			13.6	◆	◆	✓	✓					✓
Imbentin-T/65 90%	POE (10) Isotridecanol	9.5	liquid	9043-30-5	620	>89.0	<b>63</b>			13.6	◆	◆	✓	✓				✓	
Imbentin-T/100	POE (10) Isotridecanol	10.0	liquid	9043-30-5	640	>99.5	74	81	<b>76 (O)</b>	13.9	◆	◆	✓	✓				✓	✓
Imbentin-T/100 85%	POE (10) Isotridecanol	10.0	liquid	9043-30-5	640	>84.0	74	81	<b>76 (O)</b>	13.9	◆	◆	✓	✓				✓	✓
Imbentin-T/100 90%	POE (10) Isotridecanol	10.0	liquid	9043-30-5	640	>89.0	74	81	<b>76 (O)</b>	13.9	◆	◆	✓	✓				✓	✓
Imbentin-T/115 90%	POE (12) Isotridecanol	11.5	liquid	9043-30-5	700	>89.0			<b>55 (N)</b>	14.5	◆	◆	✓	✓					
Imbentin-T/120	POE (12) Isotridecanol	12.0	solid	9043-30-5	720	>99.5	<b>87</b>	85		14.6	◆	◆	✓	✓		✓		✓	✓
Imbentin-T/150	POE (15) Isotridecanol	15.0	solid	9043-30-5	850	>99.5			<b>69 (C)</b>	15.4	◆		✓	✓					✓
Imbentin-T/150 80%	POE (15) Isotridecanol	15.0	liquid	9043-30-5	850	>79.0			<b>69 (C)</b>	15.4	◆		✓	✓		✓		✓	✓
Imbentin-T/200	POE (20) Isotridecanol	20.0	solid	9043-30-5	1100	>99.5			<b>69 (C)</b>	16.6	◆		✓				✓		
Imbentin-T/200 80%	POE (20) Isotridecanol	20.0	liquid	9043-30-5	1100	>78.0			<b>92 (L)</b>	16.6	◆		✓				✓	✓	

# Fatty alcohol ethoxylates, synthetic, branched C-chain

Product range Imbentin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 2.5 %	Other methods	HLB value	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&H cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-T/300 70%	POE (30) Isotridecanol	30.0	liquid	9043-30-5	1500	>69.0			<b>92 (L)</b>	17.5	◆	✓					✓	✓	
Imbentin-T/400 70%	POE (40) Isotridecanol	40.0	liquid	9043-30-5	1950	>69.0			<b>75 (N)</b>	17.5	◆	✓	✓				✓	✓	
Imbentin-T/400 G	POE (40) Isotridecanol	40.0	pellets	9043-30-5	1950	>99.0			<b>75 (N)</b>	18.0	◆	✓	✓				✓	✓	✓
Imbentin-C/125/020	POE (2) C12 - C15 Alcohol	2.0	liquid	68131-39-5	300	>99.5			<b>45 (F)</b>	6.0		◆		✓	✓	✓			
Imbentin-C/125/030	POE (3) C12 - C15 Alcohol	3.0	liquid	68131-39-5	340	>99.5		<b>50</b>		7.8	◆	◆	✓	✓				✓	✓
Imbentin-C/125/050	POE (5) C12 - C15 Alcohol	5.0	liquid	68131-39-5	430	>99.5		<b>68</b>		10.0	◆	◆	✓	✓					
Imbentin-C/125/060	POE (6) C12 - C15 Alcohol	6.0	liquid	68131-39-5	470	>99.5			<b>78 (D)</b>	11.2	◆	◆	✓	✓					✓
Imbentin-C/125/070	POE (7) C12 - C15 Alcohol	7.0	liquid	68131-39-5	520	>99.7	<b>49</b>	78		12.0	◆	◆	✓	✓				✓	✓
Imbentin-C/125/070 90%	POE (7) C12 - C15 Alcohol	7.0	liquid	68131-39-5	520	>89.0	<b>49</b>			12.0	◆	◆	✓	✓				✓	✓
Imbentin-C/125/55 90%	POE (8) C12 - C15 Alcohol	8.0	liquid	68131-39-5	560	>89.5	<b>55</b>	81		12.6	◆	◆	✓	✓					✓
Imbentin-C/125/090	POE (9) C12 - C15 Alcohol	9.0	liquid	68131-39-5	600	>99.5	<b>78</b>			13.1	◆	◆	✓	✓	✓	✓			✓
Imbentin-C/125/120	POE (12) C12 - C15 Alcohol	12.0	pasty	68131-39-5	730	>99.9				14.5	◆	◆							
Imbentin-C/125/150 80%	POE (15) C12 - C15 Alcohol	15.0	liquid	68131-39-5	860	>79.0			<b>68 (C)</b>	15.5	◆								
Imbentin-C/125/200	POE (20) C12 - C15 Alcohol	20.0	solid	68131-39-5	1100	>99.5				16.0	◆			✓					
Imbentin-C/145/040	POE (4) C14 - C15 Alcohol	4.0	liquid	68951-67-7	400	>99.7		<b>63</b>		9.0	◆		✓						
Imbentin-C/145/050	POE (5) C14 - C15 Alcohol	5.0	liquid	68951-67-7	440	>99.7		<b>65</b>		10.4	◆		✓						
Imbentin-C/145/070	POE (7) C14 - C15 Alcohol	7.0	liquid	68951-67-7	530	>99.5	<b>46</b>	80		11.7	◆		✓	✓					
Imbentin-C/145/090 85%	POE (9) C14 - C15 Alcohol	9.0	liquid	68951-67-7	620	>84.0	<b>63</b>			12.6	◆		✓	✓					
Imbentin-C/145/110	POE (11) C14 - C15 Alcohol	11.0	solid	68951-67-7	710	>99.5	<b>86</b>			13.8	◆		✓	✓		✓			
Imbentin-C/145/110 85%	POE (11) C14 - C15 Alcohol	11.0	liquid	68951-67-7	710	>84.0	<b>86</b>			13.8	◆		✓			✓			

specified cloud point values are printed in bold

For more detailed information of our documentation, please see page 35.

# Low-foaming alcohol, fatty acid and polyole alkoxyates

Product range Imbentin™	Chemical description	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	Detergent Regulation	Detergent Ingredient Database	Detergent, H&I I&H cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-SG/43/C	POE/POP Adduct	liquid	69013-18-9	530	>99.5	5	34	11 (K)	◆	◆	✓	✓					
Imbentin-SG/703	POE/POP Adduct	liquid	69013-18-9	1170	>99.5	10		45 (D)	◆		✓	✓					
Imbentin-SG/704	POE/POP Adduct	liquid	69013-18-9	930	>99.0	11	<b>29</b>		◆		✓	✓					
Imbentin-SG/702/AG	POE/POP Adduct	liquid	69013-18-9	850	>99.0	18	32		◆								
Imbentin-SG/715/AG	POE/POP Adduct	liquid	69013-18-9	2250	>99.5	19	35	45 (D)			✓	✓					
Imbentin-SG/723/AG	POE/POP Adduct	liquid	n.a.	2290	>99.8	20	28	44 (D)	◆		✓	✓					
Imbentin-SG/722/T	POE/POP Adduct	liquid	69013-18-9	570	>99.5	24	<b>51</b>		◆								
Imbentin-SG/725/T	POE/POP Adduct	liquid	n.a.	690	>99.5	25	<b>38</b>		◆		✓	✓					
Imbentin-SG/45/AG	POE/POP Adduct	liquid	69013-18-9	580	>99.5	<b>28</b>	47		◆		✓	✓					
Imbentin-SG/727/AG	POE/POP Adduct	liquid	68439-51-0	620	>99.5	<b>28</b>	44		◆		✓	✓	✓				✓
Imbentin-SG/719/AG	POE/POP Adduct	liquid	69013-18-9	810	>98.5	<b>29</b>	37		◆		✓	✓	✓				
Imbentin-SG/46/C	POE/POP Adduct	liquid	69013-18-9	680	>98.0	<b>30</b>	41		◆		✓	✓					
Imbentin-SG/8922/AG	POE/POP Adduct	liquid	69013-18-9	560	>99.5	31	<b>41</b>		◆		✓	✓					
Imbentin-SG/733/C	POE/POP Adduct	liquid	69013-18-9	630	>99.5	<b>34</b>	50		◆	◆	✓	✓					
Imbentin-SG/2583/B	POE/POP Adduct	liquid	69013-18-9	810	>99.7	<b>35</b>	43		◆			✓					
Imbentin-SG/142/EB	POE/POP Adduct, end-capped	liquid	n.a.	514	>94.0	37	63	35 (H)	◆		✓	✓					
Imbentin-SG/701/C	POE/POP Adduct	liquid	69013-18-9	810	>99.5	<b>37</b>	45		◆								
Imbentin-SG/705/AG	POE/POP Adduct	liquid	69013-18-9	790	>99.5	<b>37</b>	45		◆		✓						
Imbentin-PPF	POE/POP Adduct	liquid	69013-18-9	880	>99.5	<b>38</b>	45		◆		✓	✓	✓			✓	✓
Imbentin-SG/737/T	POE/POP Adduct	liquid	69013-18-9	940	>99.5	<b>39</b>	46		◆		✓	✓					
Imbentin-SG/48/C	POE/POP Adduct	liquid	69013-18-9	710	>99.5	<b>40</b>	48		◆		✓	✓					

## Low-foaming alcohol, fatty acid and polyole alkoxyates

Product range <b>Imbentin™</b> , <b>Hedipin™</b>	Chemical description	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-SG/802	POE/POP Adduct	liquid	69013-18-9	860	>99.5	<b>42</b>					✓	✓					✓
Imbentin-SG/172/T	POE/POP Adduct	liquid	69013-13-9	970	>99.5	<b>45</b>	46		◆		✓						
Imbentin-SG/729/AG	POE/POP Adduct	liquid	n.a.	660	>99.7	45	53	<b>36 (L)</b>	◆		✓						
Imbentin-SG/918/AG 80 %	POE/POP Adduct	liquid	69013-18-9	1570	>79.0	<b>51</b>			◆			✓					
Imbentin-SG/2385/C	POE/POP Adduct	liquid	69013-18-9	580	>99.5	<b>60</b>	51		◆		✓	✓					
Imbentin-SG/128/EB	POE/POP Adduct, end-capped	liquid	n.a.	525	>99.5		<b>59</b>		◆			✓					
Imbentin-SG/43/AG	POE/POP Adduct	liquid	69013-18-9	480	>99.5	3	34	<b>11 (K)</b>	◆		✓	✓	✓				
Imbentin-SG/25/C	POE/POP Adduct	liquid	69013-8-9	590	>99.5		<b>41</b>		◆	◆	✓	✓					
Imbentin-SG/717/AG	POE/POP Adduct	liquid	n.a.	360	>99.5			47 (D)	◆		✓	✓					
Hedipin-CSG/01	POE/POP Adduct	liquid	n.a.	880	>99.7		<b>61</b>		◆			✓				✓	
Imbentin-SG/2482/B	POE/POP Adduct	liquid	69013-18-9	930	>99.7			<b>30 (F)</b>	◆		✓	✓					
Imbentin-SG/803	POE/POP Adduct	liquid	9038-95-3	5510	>99.0			<b>48 (C)</b>									



## Polyethylene glycols

Product range Imbentin™	Chemical description	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Hydroxyl value [mgKOH/g]	Detergent, H&E I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation Et plastics	Coatings Et concrete	Agro chemicals
Imbentin-PEG/200	PEG-4	liquid	25322-68-3	200	>99.5	560	✓	✓	✓		✓	✓	
Imbentin-PEG/300	PEG-6	liquid	25322-68-3	300	>99.5	375	✓	✓	✓		✓	✓	
Imbentin-PEG/400	PEG-8	liquid	25322-68-3	400	>99.5	280	✓	✓	✓		✓	✓	
Imbentin-PEG/600	PEG-12	liquid	25322-68-3	600	>99.5	185	✓	✓	✓		✓	✓	
Imbentin-PEG/1500 P	PEG-32	powder	25322-68-3	1500	>99.0	75	✓	✓	✓		✓	✓	
Imbentin-PEG/4000 G	PEG-80	pellets	25322-68-3	4000	>99.0	25	✓	✓	✓		✓	✓	
Imbentin-PEG/4000 P	PEG-80	powder	25322-68-3	4000	>99.5	25	✓	✓	✓		✓	✓	

## EO/PO Block co-polymers

Product range Imbentin™	Chemical description	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	Detergent Regulation	Detergent, H&E I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation Et plastics	Coatings Et concrete	Agro chemicals
Imbentin-PAP/6100	POE/POP, PO Block (MW 1750)	liquid	9003-11-6	2000	>99.5	25	<b>41</b>		◆	✓	✓			✓	✓	✓
Imbentin-PAP/6200	POE/POP, PO Block (MW 1750)	liquid	9003-11-6	2500	>99.5	<b>35</b>	60		◆	✓	✓			✓	✓	✓
Imbentin-PAP/6400	POE/POP, PO Block (MW 1750)	pasty	9003-11-6	2900	>99.0	63	68	<b>60 (H)</b>		✓	✓					
Imbentin-PAP/6800 G	POE/POP, PO Block (MW 1750)	pellets	9003-11-6	8000	>99.0			<b>71 (C)</b>		✓	✓			✓	✓	
Imbentin-PAP/9100	POE/POP, PO Block (MW 2900)	liquid	9003-11-6	3100	>99.5		<b>37</b>	14 (K)		✓						
Imbentin-PAP/9400	POE/POP, PO Block (MW 2750)	solid	9003-11-6	4600	>99.0		<b>80</b>			✓						
Imbentin-PAP/10100	POE/POP, PO Block (MW 3250)	liquid	9003-11-6	3500	>99.5			37 (D)		✓					✓	
Imbentin-PPA/2500	POE/POP	liquid	9003-11-6	2800	>99.5	<b>28</b>				✓						

specified cloud point values are printed in bold

For more detailed information of our documentation, please see page 35.

## Low odour alcohol ethoxylates

Product range Imbentin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 2.5 %	HLB value	Detergent, HHHH cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & Concrete	Agro chemicals
Imbentin-C/91/35 OFA	POE (5) C9 - C11 Alcohol	5.0	liquid	68439-46-3	380	>99.5	<b>53</b>		11.6	✓	✓		✓			
Imbentin-POA/050 OFA NUOVA	POE (5) Cetyl Oleyl Alcohol	5.0	liquid	68920-66-1	480	>99.5	52	<b>65</b>	9.0	✓	✓		✓			
Imbentin-C/91/080 OFA	POE (8) C9 - C11 Alcohol	8.0	liquid	68439-46-3	510	>99.5	<b>84</b>		13.8	✓	✓		✓			
Imbentin-C/91/080 OFA 90%	POE (8) C9 - C11 Alcohol	8.0	liquid	68439-46-3	510	>89.0	<b>84</b>		13.8	✓	✓		✓			
Imbentin-AGS/35	POE (5) C11-C15 Alcohol	5.0	liquid	68131-40-8	550	>99.5	<b>37</b>		14.0	✓						
Imbentin-AGS/55	POE (9) C11-C15 Alcohol	9.0	liquid	68131-40-8	730	>99.5	<b>59</b>		13.5	✓			✓			
Imbentin-ES/100/070 90%			liquid	69013-18-9	570	>89.0	<b>67</b>	77	13.5	✓	✓					

# Alkyl phenol ethoxylates

Product range Imbentin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	HLB value	Detergent, HEI I&II cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-N/020	POE(2) Nonylphenol	2.0	liquid	9016-45-9	300	>99.5			<b>68 (P)</b>	6.0		✓	✓	✓			
Imbentin-N/030	POE(3) Nonylphenol	3.0	liquid	9016-45-9	350	>99.5			<b>38 (F)</b>	7.0							✓
Imbentin-N/035	POE(3) Nonylphenol	3.5	liquid	9016-45-9	370	>99.5			<b>45 (F)</b>	8.3							✓
Imbentin-N/040	POE(4) Nonylphenol	4.0	liquid	9016-45-9	400	>99.5		44	<b>56 (F)</b>	8.9		✓	✓	✓			
Imbentin-N/060	POE(6) Nonylphenol	6.0	liquid	9016-45-9	480	>99.5		63	<b>68 (F)</b>	10.9		✓	✓	✓		✓	✓
Imbentin-N/40 A	POE(7) Nonylphenol	6.5	liquid	9016-45-9	500	>99.5			<b>40 (K)</b>	11.5							✓
Imbentin-N/35	POE(8) Nonylphenol	8.0	liquid	9016-45-9	580	>99.5	<b>34</b>	74	84 (D)	12.3		✓			✓	✓	✓
Imbentin-N/55	POE(9) Nonylphenol	9.0	liquid	9016-45-9	610	>99.5	<b>54</b>	76		12.9		✓			✓	✓	✓
Imbentin-N/63	POE(10) Nonylphenol	10.0	liquid	9016-45-9	660	>99.5	<b>63</b>	79	86 (D)	13.3		✓		✓	✓	✓	✓
Imbentin-N/98	POE(15) Nonylphenol	14.5	pasty	9016-45-9	860	>99.5	<b>96</b>			15.0							✓
Imbentin-N/200	POE(20) Nonylphenol	20.0	solid	9016-45-9	1100	>99.5			<b>73 (C)</b>	16.0				✓	✓		
Imbentin-N/300	POE(30) Nonylphenol	30.0	solid	9016-45-9	1600	>99.5			<b>76 (C)</b>	17.5		✓		✓	✓	✓	✓
Imbentin-N/300 70%	POE(30) Nonylphenol	30.0	liquid	9016-45-9	1600	>69.0			<b>76 (C)</b>	17.5				✓	✓	✓	✓
Imbentin-N/350 G	POE(35) Nonylphenol	35.0	pellets	9016-45-9	1700	>99.0			<b>75 (C)</b>	17.5		✓		✓	✓		
Imbentin-N/400 70%	POE(40) Nonylphenol	40.0	liquid	9016-45-9	1900	>69.0			<b>75 (C)</b>	17.5				✓		✓	
Imbentin-N/400 G	POE(40) Nonylphenol	40.0	pellets	9016-45-9	1900	>99.0			<b>75 (C)</b>	17.7				✓			
Imbentin-N/500 E	POE(50) Nonylphenol	50.0	solid	9016-45-9	2300	>99.5			<b>74 (C)</b>	18.0				✓		✓	
Imbentin-N/600 50%	POE(60) Nonylphenol	60.0	liquid	9016-45-9	2800	>49.0			<b>74 (C)</b>	18.0				✓	✓		
Imbentin-O/050	POE(5) Octylphenol	5.0	liquid	9002-93-1	420	>99.5		<b>56</b>	74 (D)	10.5	✓				✓		
Imbentin-O/100	POE(10) Octylphenol	10.0	liquid	9002-93-1	620	>99.5	<b>66</b>		86 (D)	13.6							✓
Imbentin-O/100 I	POE(10) Octylphenol	10.0	liquid	9002-93-1	620	>99.5	<b>73</b>	79	86 (D)	13.6							
Imbentin-O/300 70%	POE(30) Octylphenol	30.0	liquid	9002-93-1	1500	>69.0			<b>75 (C)</b>	17.3				✓	✓	✓	✓
Imbentin-O/400	POE(40) Octylphenol	40.0	solid	9002-93-1	1900	>99.5			<b>73 (M)</b>	17.9							
Imbentin-O/400 70%	POE(40) Octylphenol	40.0	liquid	9002-93-1	1900	>69.0			<b>73 (C)</b>	18.0							

specified cloud point values are printed in bold

For more detailed information of our documentation, please see page 35.

# Triglyceride ethoxylates

Product range Hedipin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Saponification value [mgKOH/g]	HLB value	Detergent Regulation	Detergent, H&E I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Hedipin-R/050	POE (5) Castor oil	5.0	liquid	61791-12-6	1180	>99.5	143	3.7	◆		✓	✓				✓
Hedipin-R/060 H	POE (6) Castor oil	6.0	liquid	61791-12-6	1200	>99.5	140	4.5	◆		✓		✓			
Hedipin-R/100	POE (10) Castor oil	10.0	liquid	61791-12-6	1350	>99.5	125	6.5	◆		✓	✓	✓			
Hedipin-R/130 H	POE (13) Castor oil	13.0	liquid	61791-12-6	1500	>99.5	110	7.5	◆		✓				✓	
Hedipin-R/150	POE (15) Castor oil	15.0	liquid	61791-12-6	1600	>99.5	105	8.5	◆		✓		✓			✓
Hedipin-R/200	POE (20) Castor oil	20.0	liquid	61791-12-6	1870	>99.5	90	9.5	◆		✓				✓	✓
Hedipin-R/220	POE (22) Castor oil	22.0	liquid	61791-12-6	1300	>99.5	88	10.2	◆			✓				
Hedipin-R/250 H	POE (25) Castor oil	25.0	liquid	61791-12-6	2050	>99.5	82	10.7	◆		✓			✓		✓
Hedipin-R/300	POE (30) Castor oil	30.0	liquid	61791-12-6	2250	>99.5	75	11.5	◆	✓	✓		✓		✓	✓
Hedipin-R/360	POE (36) Castor oil	36.0	liquid	61791-12-6	2480	>99.0	68	12.3	◆	✓	✓	✓			✓	
Hedipin-R/400 H	POE (40) Castor oil	40.0	liquid	61791-12-6	2700	>99.5	62	13.0	◆	✓	✓					✓
Hedipin-R/550 95%	POE (55) Castor oil	55.0	liquid	61791-12-6	3800	>94.0	44		◆	✓	✓					
Hedipin-R/750 H	POE (75) Castor oil	75.0	solid	61791-12-6	4300	>99.5	39	15.5	◆	✓	✓					
Hedipin-R/850	POE (85) Castor oil	85.0	solid	61791-12-6	4700	>99.5	36	16.0	◆	✓	✓		✓		✓	
Hedipin-R/1800 G	POE (180) Castor oil	180.0	pellets	61791-12-6	8850	>99.0	19	17.9		✓	✓			✓		
Hedipin-R/2000 G	POE (200) Castor oil	200.0	pellets	61791-12-6	9200	>99.0	18	18.0		✓	✓		✓	✓	✓	✓
Hedipin-RH/160 (1)	POE (16) Hydrogenated castor oil	16.0	liquid	61788-85-0	1700	>99.0	100	9.0								
Hedipin-RH/250	POE (25) Hydrogenated castor oil	25.0	liquid	61788-85-0	2050	>97.0	82	11.0	◆		✓	✓			✓	
Hedipin-R/55	POE (5) Modified castor oil	5.0	liquid	61791-12-6	3700	>99.0	45				✓					
Hedipin-SO/360	POE (36) Soy bean oil	36.0	pasty	61791-23-9	2400	>99.7	70	17.0	◆		✓					
Hedipin-SO/400	POE (40) Soy bean oil	40.0	pasty	61791-23-9	3000	>99.5	56	17.3	◆		✓					

## Fatty acid ethoxylates

Product range Hedipin™	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Saponification value [mgKOH/g]	HLB value	Detergent Regulation	Detergent, HEI I&I cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Hedipin-CFA/090	POE (9) Coconut fatty acid	9.0	liquid	61791-29-5	620	>99.5	95	13.0	◆	✓	✓	✓				
Hedipin-CFA/100	POE (10) Coconut fatty acid	10.0	liquid	61791-29-5	660	>99.5	85	13.5	◆	✓	✓	✓				
Hedipin-PO/035	POE (4) Oleic acid	3.5	liquid	9004-96-0	430	>99.5	130	7.2	◆							
Hedipin-PO/045	POE (5) Oleic acid	4.5	liquid	9004-96-0	480	>99.5	120	8.5	◆	✓	✓					
Hedipin-PO/070	POE (7) Oleic acid	7.0	liquid	9004-96-0	590	>99.5	95	10.5	◆	✓	✓					
Hedipin-PO/090	POE (9) Oleic acid	9.0	liquid	9004-96-0	680	>99.5	79	12.0	◆	✓	✓	✓				
Hedipin-PO/120	POE (12) Oleic acid	12.0	liquid	9004-96-0	810	>99.5	70	13.5	◆	✓	✓	✓				
Hedipin-PT/045	POE (5) Tall oil fatty acid	4.5	liquid	61791-00-2	480	>99.5	116	8.3	◆	✓						
Hedipin-PT/100	POE (10) Tall oil fatty acid	10.0	liquid	61791-00-2	720	>99.5	78	12.2	◆						✓	
Hedipin-PS/060	POE (6) Stearic acid	6.0	pasty	9004-99-3	560	>99.5	100	10.0	◆		✓				✓	
Hedipin-PS/230 G	POE (23) Stearic acid	23.0	pellets	9004-99-3	1200	>99.0	45	16.8	◆							
Hedipin-PS/400 G	POE (40) Stearic acid	40.0	pellets	9004-99-3	2200	>99.0	25	17.3	◆				✓		✓	
Hedipin-CU/170	POE (17) Coconut oil	17.0	liquid	68201-46-7	1800	>99.0	94	15.4		✓						

## Fatty amine/amide ethoxylates

Product range <b>Imbentin™</b>	Chemical description	EO [mole]	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Amine value [mgKOH/g]	Detergent Regulation	Detergent Ingredient Database	Detergent, H&E I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-CAM/020	POE (2) Coco amine	2.0	liquid	61791-14-8	280	>99.5	200	◆		✓	✓		✓	✓	✓	✓
Imbentin-CAM/120	POE (12) Coco amine	12.0	liquid	61791-14-8	750	>99.5	75	◆		✓	✓		✓	✓		
Imbentin-CAM/150	POE (15) Coco amine	15.0	liquid	61791-14-8	850	>99.5	66	◆		✓	✓		✓		✓	✓
Imbentin-TAM/020	POE (2) Tallow amine	2.0	liquid	61791-26-2	340	>99.5	165	◆			✓			✓	✓	
Imbentin-TAM/023	POE (2) Tallow amine	2.3	liquid	61791-26-2	370	>99.5	151	◆			✓			✓	✓	
Imbentin-TAM/050	POE (5) Tallow amine	5.0	liquid	61791-26-2	490	>99.5	115			✓	✓			✓	✓	✓
Imbentin-TAM/080	POE (8) Tallow amine	8.0	liquid	61791-26-2	620	>99.5	90				✓			✓	✓	
Imbentin-TAM/100	POE (10) Tallow amine	10.0	liquid	61791-26-2	700	>99.5	80				✓		✓	✓	✓	✓
Imbentin-TAM/120	POE (12) Tallow amine	12.0	liquid	61791-26-2	790	>99.5	71				✓			✓	✓	
Imbentin-TAM/150	POE (15) Tallow amine	15.0	liquid	61791-26-2	920	>99.5	61				✓			✓	✓	✓
Imbentin-TAM/200	POE (20) Tallow amine	20.0	liquid	61791-26-2	1100	>99.5	50				✓		✓	✓	✓	✓
Imbentin-TAM/350	POE (35) Tallow amine	35.0	solid	61791-26-2	1750	>99.5	32				✓			✓	✓	
Imbentin-TAM/400	POE (40) Tallow amine	40.0	solid	61791-26-2	2000	>99.5	28				✓			✓	✓	
Imbentin-SAM/050	POE (5) Stearyl amine	5.0	liquid	26635-92-7	490	>99.5	115				✓		✓	✓	✓	
Imbentin-SAM/100	POE (10) Stearyl amine	10.0	liquid	26635-92-7	700	>99.5	80				✓			✓		
Imbentin-SAM/250	POE (25) Stearyl amine	25.0	pasty	26635-92-7	1300	>99.5	42				✓			✓	✓	
Imbentin-SAM/400	POE (40) Stearyl amine	40.0	solid	26635-92-7	1900	>99.5	29				✓			✓	✓	
Imbentin-OAM/020	POE (2) Oleyl amine	2.0	liquid	26635-93-8	350	>99.5	163	◆	◆	✓	✓			✓	✓	
Imbentin-DT/030	POE (3) Tallow propylene diamine	3.0	liquid	61790-85-0	470	>99.5	237									
Imbentin-DT/100	POE (10) Tallow propylene diamine	10.0	liquid	61790-85-0	800	>99.5	140				✓					
Imbentin-DT/150	POE (15) Tallow propylene diamine	15.0	liquid	61790-85-0	1000	>99.5	112				✓					
Imbentin-CMEA/020	POE (2) Coco monoethanol amide	2.0	liquid	68425-44-5	340	>99.5										
Imbentin-CMEA/045	POE (5) Coco monoethanol amide	4.5	liquid	68425-44-5	450	>99.5		◆	◆		✓			✓		

## Sorbitan esters and ethoxylates

Product range Kosteran™, Kotilen™	Chemical description	Form at 25 °C	CAS-number	Average molecular weight [g/mole] (1)	Active matter [%]	HLB value	Detergent Regulation	Detergent, H&H cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Kosteran-L/1 **	Sorbitan monolaurate	liquid	1338-39-2	340	>99.0	8.6	☐		✓		✓		✓	✓
Kosteran-P/1 *, **	Sorbitan monopalmitate	pellets	26266-57-9	390	>98.5	6.7	☐				✓		✓	
Kosteran-S/1 G **	Sorbitan monostearate	pellets	1338-41-6	410	>98.5	4.7	☐		✓		✓		✓	
Kosteran-S/3 G	Sorbitan tristearate	pellets	26658-19-5	930	>99.0	2.1			✓		✓		✓	
Kosteran-I/1	Sorbitan isostearate	liquid	54392-26-6	380	>99.0	4.3							✓	
Kosteran-I/3	Sorbitan triisostearate	liquid	54392-27-7	1000	>99.0									
Kosteran-O/1 AN	Sorbitan monooleate	liquid	1338-43-8	360	>99.0	4.3	☐	✓	✓	✓			✓	✓
Kosteran-O/1 VL *, **	Sorbitan monooleate	liquid	1338-43-8	360	>99.0	4.3	☐	✓	✓	✓			✓	✓
Kosteran-SQ/0 VH	Sorbitan sesquioleate	liquid	8007-43-0	550	>99.0	4.5							✓	✓
Kosteran-O/3 VH **	Sorbitan trioleate	liquid	26266-58-0	940	>99.0	1.8				✓			✓	✓
Kosteran-T/1	Sorbitan monotallate	liquid	61791-48-8	380	>99.0	4.3			✓	✓			✓	
Kotilen-L/1 *, **	POE (20) Sorbitan laurate	liquid	9005-64-5	1200	>97.0	16.7		✓	✓				✓	✓
Kotilen-P/1 **	POE (20) Sorbitan palmitate	pasty	9005-66-7	1300	>97.0	15.6							✓	
Kotilen-S/1 **	POE (20) Sorbitan stearate	pasty	9005-67-8	1100	>97.0	14.9			✓		✓		✓	✓
Kotilen-S/3	POE (20) Sorbitan tristearate	solid	9005-71-4	1800	>97.0	10.5							✓	✓
Kotilen-O/1 AN	POE (20) Sorbitan oleate	liquid	9005-65-6	1100	>97.0	15.0		✓	✓			✓		✓
Kotilen-O/1 VL*, **	POE (20) Sorbitan oleate	liquid	9005-65-6	1100	>97.0	15.0		✓	✓			✓	✓	✓
Kotilen-O/1/050 VL	POE (5) Sorbitan oleate	liquid	9005-65-5	580	>97.0	10.0		✓	✓				✓	
Kotilen-O/3 VH	POE (20) Sorbitan trioleate	liquid	9005-65-6	1800	>97.0	11.0							✓	✓

\* also available as food grade quality according to EC/98/86

\*\* fulfill the requirements of the European Pharmacopoeia, latest edition

(1) calculated from specified values of the products

## Selected specialties

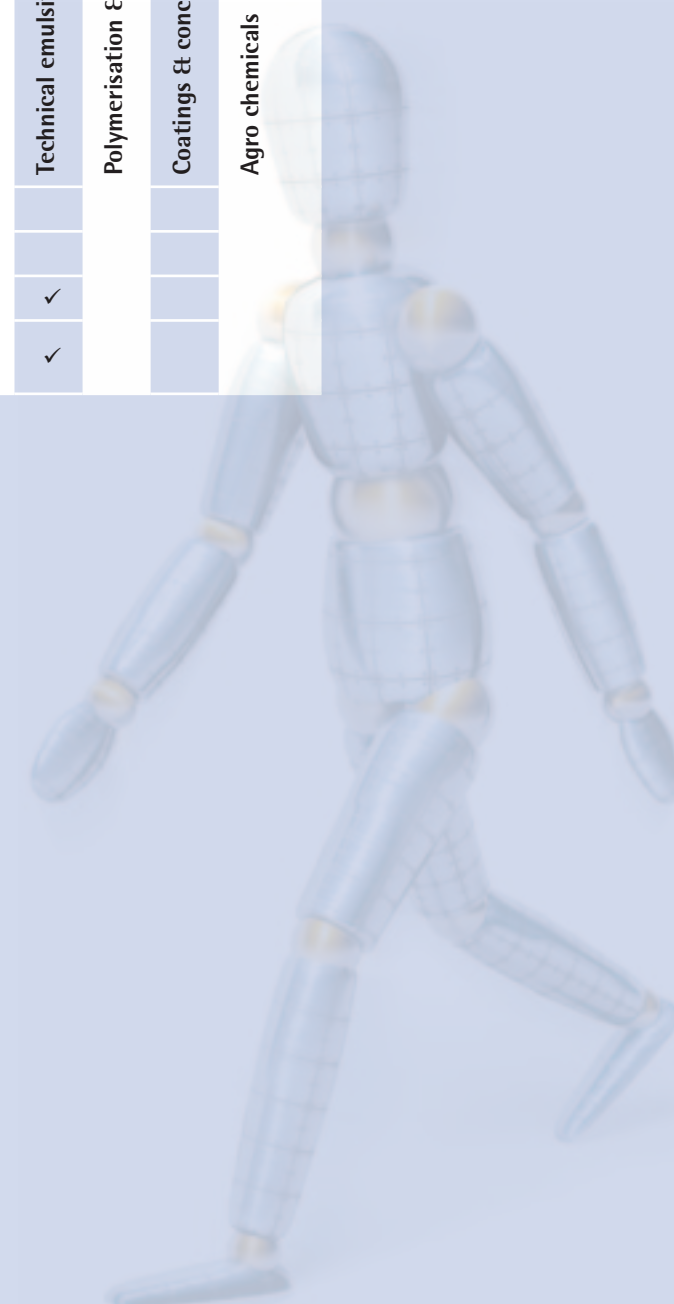
Product range Hedipin™, Hedilub™, Imbentin™	Chemical description	Form at 25 °C	CAS-number	Average molecular weight [g/mole]	Active matter [%]	Viscosity [mPa·s]	Detergent Regulation	Detergent, H&E & I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Hedipin-IDTR	Tri (isodecyl) trimellitate	liquid	36631-30-8	210	>99.5	40°C 125				✓				
Hedipin-ITS	Isotridecyl stearate	liquid	95912-88-2	430	>99.7	20°C 26			✓	✓				
Hedipin-IOIO	Isooctyl iso octanoate	liquid	7425-14-1	250	>99.5	40°C 2.8			✓	✓			✓	
Hedipin-LBZ	Lauryl benzoate	liquid	68411-27-8	310	>99.5	25°C 10	◆		✓				✓	
Hedipin-OBZ	Octyl benzoate	liquid	5444-75-7	240	>99.8								✓	
Hedipin-MEL/5/K(1)	Methyl propylene glycol cocoate	liquid	n.a.	700	n.a.	20°C 55	◆	✓	✓		✓			
Hedipin-OFC	Octanol ethoxy caprylate	liquid	n.a.	600	n.a.	20°C 37			✓					
Hedipin-PEDS G(1)	Pentaerythritol ester	pellets	13081-97-5	690	>99.0				✓		✓		✓	
Hedilub-DOA	Di (2-ethylhexyl) adipate	liquid	103-23-1	370	>99.8	25°C 10	◆		✓	✓			✓	
Hedilub-LB/504	2-ethylhexyl oleate	liquid	84988-77-2	390	n.a.	40°C 8				✓				
Hedilub-LB/508	Di (isotridecyl) adipate	liquid	26401-35-4	510	>99.5	40°C 30				✓				
Imbentin-AGM/37 G	Blend	pellets	9005-00-9		>99.0	60°C 50					✓			
Imbentin-HSC	Functional blend	liquid	n.a.		>99.0		◆	✓						
Hedipin-SHO/500	PEG-50 sorbitan hexaoleate	liquid	57171-56-9	3700	>99.0	25°C 200				✓			✓	

## Selected specialties

Product name	Chemical description	Form at 25 °C	CAS-number	Active matter [%]	Cloud point [°C] 1% in deion. H <sub>2</sub> O	Cloud point [°C] 5g in 25g BDG 25 %	Other methods	Detergent, H&E I&E cleaner	Textile auxiliaries	Lubricants	Technical emulsifiers	Polymerisation & plastics	Coatings & concrete	Agro chemicals
Imbentin-BN/55	Beta naphthol, ethoxylated	liquid	35545-57-4	>99.7			68 (I)							
Produkt-HF/2	Styrol phenol, ethoxylated	liquid	n.a.	>99.8		65			✓					
Hedilub-EM/307	Triglycerid esters, ethoxylated	liquid	n.a.	n.a.						✓	✓			
Hedilub-EM/404	Blend triglyceride and sorbitol based, ethoxylated	liquid	n.a.	n.a.						✓	✓			

## Technical emulsifiers

Product range Hedimuls™	Chemical description	HLB value	Form at 25 °C	Active matter [%]	FDA approval	Oil phase	Coatings & concrete
Hedimuls-LO/01	Blend	10.5	pasty	>98.0	S	Linseed oil	✓
Hedimuls-PW/01	Blend	10.0	solid	>98.0	S	Paraffin wax (50/52)	✓
Hedimuls-SOP/02	Blend	8.5	solid	>99.4	S	Silicon oil PDMS	✓



# Values

## Acid value

The Acid value is defined as the quantity in mg of KOH required to neutralise 1g of the sample being tested.

$$\text{Acid value} = \frac{5.611n}{m}$$

n = Titration quantity of 0.1M NaOH in ml  
 m = Weight in quantity of the sample in g  
 5,611= KOH[mg] concentration in 0,1M solution

## Saponification value

The Saponification value is defined as the quantity in mg of KOH required to saponify 1 g of the sample being tested.

$$\text{Saponification value} = \frac{28.05 (n_2 - n_1)}{m}$$

n1 = Titration quantity 1M HCl in ml for sample  
 n2 = Titration quantity of 1M HCl in ml for blank test  
 m = Weight in quantity of the sample in g

## Hydroxyl value

The Hydroxyl value is the quantity of KOH in mg which is the equivalent of the acetylation of 1g of the substance of bound acetic acid.

$$\text{Hydroxyl value} = \frac{56.11 (n_2 - n_1)}{m} + AV$$

n1 = Titration quantity 1M HCl in ml for sample  
 n2 = Titration quantity of 1M HCl in ml for blank test  
 m = Weight in quantity of the sample in g  
 56.11 = Molecular weight of KOH in g/mol  
 AV = Acid value in mg KOH/g

## Amine value

The Amine value is the amount of KOH in mg, which is equivalent of the amine part of 1g of substance.

$$\text{Amine value} = \frac{5.611n}{m}$$

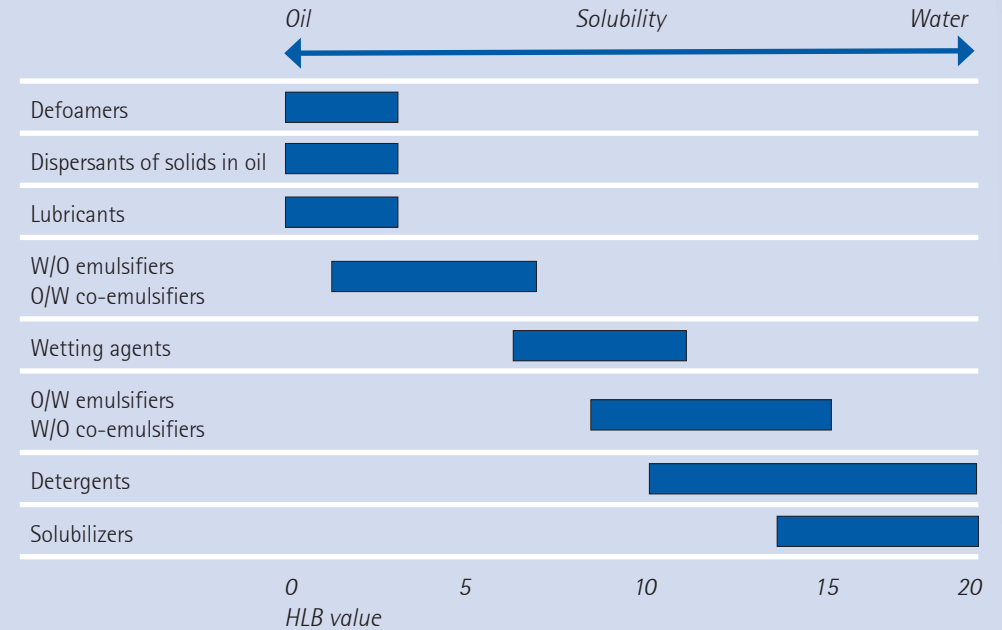
n = Titration consumption 0.1M HClO4 in ml  
 m = Weight in quantity of the sample in g  
 5,611= KOH[mg] concentration in 0,1M solution

## Hydrophilic-lipohylic balance (HLB)

This value indicates the hydrophilic-lipohylic balance of a molecule and is calculated theoretically:

**Ethoxylated fatty alcohols:** 
$$\text{HLB} = 20 \times \left( \frac{\text{molecular weight of hydrophilic part}}{\text{molecular weight of molecule}} \right)$$

**Esters and polyols:** 
$$\text{HLB} = 20 \times \left( 1 - \frac{\text{saponification value}}{\text{acid value of fatty acid}} \right)$$



## Safety, quality and environmental protection

A major contributor to our success is the incorporation of aspects of environment, health and safety (EH&S) in all our relevant business processes.

In 2003, both production locations gained ISO 9001:2000 certification for their Quality Management Systems, and their Environmental Management Systems have been ISO 14001:2004 certified since 2000. What this means is that everything is being done to avoid environmental pollution and to conserve natural resources. To enhance safety, our equipment is automatically monitored and supervised by qualified personnel.

Systematic risk analyses are carried out and implemented in line with the appropriate directives. We are strongly committed to protecting the environment: we use a special concentration process for waste water at both production locations. The concentrate is incinerated so less contaminants are released, thus protecting groundwater. We have reduced airborne pollution to a minimum: in Hedingen, a two-step exhaust-gas scrubbing system and a bio filter ensure that emissions are clean. Adopting the ‚Artare‘ energy-saving project has reduced our energy use also resulting in considerable savings.

We are already taking steps to improve and develop products to accommodate future statutory requirements. Product and safety information is also important as is meeting the highest standards.

### ISO Certification

Dr. W. Kolb AG Switzerland and Dr. W. Kolb B.V. Netherlands are ISO 9001 certified since 1994.

In 2000, both companies achieved ISO 14001 certification for environmental management systems.

In December 2006, Kolb was successfully re-certified to ISO 9001: 2000 and 14001: 2004.



## Composition of fatty alcohols

Alcohol		C 8	C 9	C 10	C 11	C 12	C 13	C 14	C 15	C 16	C 18	C 20
C8	petrochemical	99%										
C8/C10	oleochemical	45%		55%								
C10	petrochemical	10%		90%								
C10	oleochemical			94%		6%						
C9-C11	petrochemical		18%	50%	32%							
C10, Iso	petrochemical		5%	87%	8%							
C11, Iso	petrochemical			13%	81%	6%						
C12/C13	petrochemical					40%	60%					
C13, Iso	petrochemical				7%	30%	60%	3%				
C12-C15	petrochemical					20%	30%	30%	20%			
C12/C14	petrochemical					55%		45%				
C12/C14	oleochemical					70%		30%				
C12-C16	oleochemical					65%		27%		<8%		
C12-C18	oleochemical					54%		22%		12%	12%	
C14/15	petrochemical							60%	40%			
C16/C18	petrochemical							2%		63%	33%	2%
C16/C18	oleochemical									30%	70%	
C16/C18'	oleochemical											
												various iodine values

## Classification according to HLB values

HLB value 0-3: Defoamers, dispersants of solids in oil, co-emulsifiers, refatting agents

Product	Chemical description	HLB value
Kosteran-O/3 VH	Sorbitan trioleate	1.8
Kosteran-S/3 G	Sorbitan tristearate	2.1

HLB value 3-6: W/O emulsifiers, O/W co-emulsifiers

Product	Chemical description	HLB value
Hedipin-R/050	POE (5) Castor oil	3.7
Kosteran-I/1 techn.	Sorbitan isostearate	4.3
Kosteran-O/1	Sorbitan monooleate	4.3
Kosteran-T/1	Sorbitan monotallate	4.3
Hedipin-R/060 H	POE (6) Castor oil	4.5
Kosteran-SQ/O VH	Sorbitan sesquioleate	4.5
Kosteran-S/1 G	Sorbitan monostearate	4.7
Imbentin-AG/168S/020	POE (2) C16 - C18 Alcohol	5.0
Imbentin-POA/020 5055	POE (2) Cetyl Oleyl Alcohol	5.0

HLB value 6-10: Wetting agents

Product	Chemical description	HLB value
Imbentin-AG/124S/020	POE (2) C12 - C14 Alcohol	6.0
Imbentin-T/020	POE (2) Isotridecanol	6.0
Imbentin-C/125/020	POE (2) C12 - C15 Alcohol	6.0
Imbentin-N/020	POE(2) Nonylphenol	6.0
Imbentin-AG/124PG/020	POE (2) C12 - C16 Alcohol	6.2
Hedipin-R/100	POE (10) Castor oil	6.5
Kosteran-P/1 G	Sorbitan monopalmitate	6.7
Imbentin-N/030	POE(3) Nonylphenol	7.0

Product	Chemical description	HLB value
Imbentin-AG/100/020	POE (2) Decanol	7.2
Hedipin-PO/035	POE (4) Oleic acid	7.2
Hedipin-R/130 H	POE (13) Castor oil	7.5
Imbentin-C/125/030	POE (3) C12 - C15 Alcohol	7.8
Imbentin-AG/124PG/030	POE (3) C12 - C16 Alcohol	8.0
Imbentin-AG/168S/035	POE (4) C16 - C18 Alcohol	8.0
Imbentin-AG/124/030	POE (3) C12 - C14 Alcohol	8.0
Imbentin-AG/124S/030	POE (3) C12 - C14 Alcohol	8.1
Imbentin-C/91/025	POE (3) C9 - C11 Alcohol	8.1
Imbentin-T/030	POE (3) Isotridecanol	8.1
Imbentin-OA/020	POE (2) Isooctanol	8.3
Imbentin-N/035	POE(3) Nonylphenol	8.3
Hedipin-PT/045	POE (5) Talloil fatty acids	8.3
Imbentin-E/100/030	POE (3) Isodecanol	8.5
Hedipin-R/150	POE (15) Castor oil	8.5
Hedipin-PO/045	POE (5) Oleic acid	8.5
Kosteran-L/1	Sorbitan monolaurate	8.6
Imbentin-U/030	POE (3) Isoundecanol	8.7
Imbentin-N/040	POE(4) Nonylphenol	8.9
Imbentin-POA/050 5055	POE (5) Cetyl Oleyl Alcohol	9.0
Imbentin-POA/050 7075	POE (5) Cetyl Oleyl Alcohol	9.0
Imbentin-T/040	POE (4) Isotridecanol	9.0
Imbentin-C/145/040	POE (4) C14 - C15 Alcohol	9.0
Imbentin-POA/050 OFA NUOVA	POE (5) Cetyl Oleyl Alcohol	9.0
Hedipin-RH/160 (1)	POE (16) Hydrogenated castor oil	9.0
Imbentin-AG/124S/040	POE (4) C12 - C14 Alcohol	9.5
Hedipin-R/200	POE (20) Castor oil	9.5

Product	Chemical description	HLB value
Imbentin-AG/124PG/050 (2)	POE (5) C12 - C16 Alcohol	10.0
Imbentin-AG/168S/060	POE (6) C16 - C18 Alcohol	10.0
Imbentin-POA/060	POE (6) Cetyl Oleyl Alcohol	10.0
Imbentin-E/100/040	POE (4) Isodecanol	10.0
Imbentin-C/125/050	POE (5) C12 - C15 Alcohol	10.0
Hedipin-PS/060	POE (6) Stearic acid	10.0
Kotilen-O/1/050 VL	POE (5) Sorbitan oleate	10.0

#### HLB value 10-15: O/W emulsifiers, detergents

Product	Chemical description	HLB value
Imbentin-AG/124S/045	POE (5) C12 - C14 Alcohol	10.1
Imbentin-OA/030	POE (3) Isooctanol	10.1
Hedipin-R/220	POE (22) Castor oil	10.2
Imbentin-C/145/050	POE (5) C14 - C15 Alcohol	10.4
Imbentin-AG/168S/080	POE (8) C16 - C18 Alcohol	10.5
Imbentin-AG/124/050	POE (5) C12 - C14 Alcohol	10.5
Imbentin-C/91/040	POE (4) C9 - C11 Alcohol	10.5
Imbentin-O/050	POE(5) Octylphenol	10.5
Hedipin-PO/070	POE (7) Oleic acid	10.5
Kotilen-S/3	POE (20) Sorbitan tristearate	10.5
Imbentin-AG/100/040	POE (4) Decanol	10.6
Imbentin-T/050	POE (5) Isotridecanol	10.6
Imbentin-T/050 85%	POE (5) Isotridecanol	10.6
Hedipin-R/250 H	POE (25) Castor oil	10.7
Imbentin-N/060	POE(6) Nonylphenol	10.9

Product	Chemical description	HLB value
Imbentin-AG/102/045	POE ( 5) C10 - C12 Alcohol	11.0
Hedipin-RH/250	POE (25) Hydrogenated castor oil	11.0
Kotilen-O/3 VH	POE (20) Sorbitan trioleate	11.0
Imbentin-U/050	POE (5) Isoundecanol	11.2
Imbentin-U/050 87%	POE (5) Isoundecanol	11.2
Imbentin-C/125/060	POE (6) C12 - C15 Alcohol	11.2
Imbentin-POA/080 90%	POE (8) Cetyl Oleyl Alcohol	11.4
Imbentin-POA/080 90%	POE (8) Cetyl Oleyl Alcohol	11.4
Imbentin-AG/124S/060	POE (6) C12 - C14 Alcohol	11.5
Imbentin-POA/080 7075	POE (8) Cetyl Oleyl Alcohol	11.5
Imbentin-POA/080	POE (8) Cetyl Oleyl Alcohol	11.5
Imbentin-AG/810/050	POE (5) C8 - C10 Alcohol	11.5
Imbentin-AG/102/050 90%	POE ( 5) C10 - C12 Alcohol	11.5
Imbentin-C/91/35	POE (5) C9 - C11 Alcohol	11.5
Imbentin-E/100/050	POE (5) Isodecanol	11.5
Imbentin-E/100/050 95%	POE (5) Isodecanol	11.5
Imbentin-T/060	POE (6) Isotridecanol	11.5
Imbentin-T/060 90%	POE (6) Isotridecanol	11.5
Imbentin-N/40 A	POE(7) Nonylphenol	11.5
Hedipin-R/300	POE (30) Castor oil	11.5
Imbentin-C/91/35 OFA	POE (5) C9 - C11 Alcohol	11.6
Imbentin-AG/100/35	POE (5) Decanol	11.7
Imbentin-C/145/070	POE (7) C14 - C15 Alcohol	11.7
Imbentin-AG/124S/065	POE (7) C12 - C14 Alcohol	11.9
Imbentin-AG/124S/070 90%	POE (7) C12 - C14 Alcohol	11.9
Imbentin-C/125/070	POE (7) C12 - C15 Alcohol	12.0
Imbentin-C125/070 90%	POE (7) C12 - C15 Alcohol	12.0
Hedipin-PO/090	POE (9) Oleic acid	12.0
Imbentin-U/060	POE (6) Isoundecanol	12.1
Imbentin-AG/124PG/070	POE (7) C12 - C16 Alcohol	12.2

Product	Chemical description	HLB value
Imbentin-T/070	POE (7) Isotridecanol	12.2
Imbentin-T/070 90%	POE (7) Isotridecanol	12.2
Hedipin-PT/100	POE (10) Talloil fatty acids	12.2
Imbentin-AG/124S/070	POE (7) C12 - C14 Alcohol	12.3
Imbentin-N/35	POE(8) Nonylphenol	12.3
Hedipin-R/360	POE (36) Castor oil	12.3
Imbentin-AG/124S/075	POE (7) C12 - C14 Alcohol	12.5
Imbentin-AG/168S/100	POE (10) C16 - C18 Alcohol	12.5
Imbentin-POA/100	POE (10) Cetyl Oleyl Alcohol	12.5
Imbentin-AG/124/075 90%	POE (8) C12 - C14 Alcohol	12.5
Imbentin-AGM 90%	POE (8) C12 - C14 Alcohol	12.5
Imbentin-C/91/060	POE (6) C9 - C11 Alcohol	12.5
Imbentin-C/91/060 90%	POE (6) C9 - C11 Alcohol	12.5
Imbentin-E/100/060	POE (6) Isodecanol	12.5
Imbentin-AG/100/52	POE (6) Decanol	12.6
Imbentin-OA/050	POE (5) Isooctanol	12.6
Imbentin-C/125/55 90%	POE (8) C12 - C15 Alcohol	12.6
Imbentin-C/145/090 85%	POE (9) C14 - C15 Alcohol	12.6
Imbentin-U/070	POE (7) Isoundecanol	12.8
Imbentin-U/070 90%	POE (7) Isoundecanol	12.8
Imbentin-AG/124S/080	POE (8) C12 - C14 Alcohol	12.9
Imbentin-AG/124S/080 90%	POE (8) C12 - C14 Alcohol	12.9
Imbentin-T/080	POE (8) Isotridecanol	12.9
Imbentin-T/080 85%	POE (8) Isotridecanol	12.9
Imbentin-T/080 90%	POE (8) Isotridecanol	12.9
Imbentin-N/55	POE(9) Nonylphenol	12.9
Imbentin-AG/168S/110	POE (11) C16 - C18 Alcohol	13.0
Imbentin-E/100/070	POE (7) Isodecanol	13.0
Hedipin-R/400 H	POE (40) Castor oil	13.0
Hedipin-CFA/090	POE (9) Coconut fatty acids	13.0

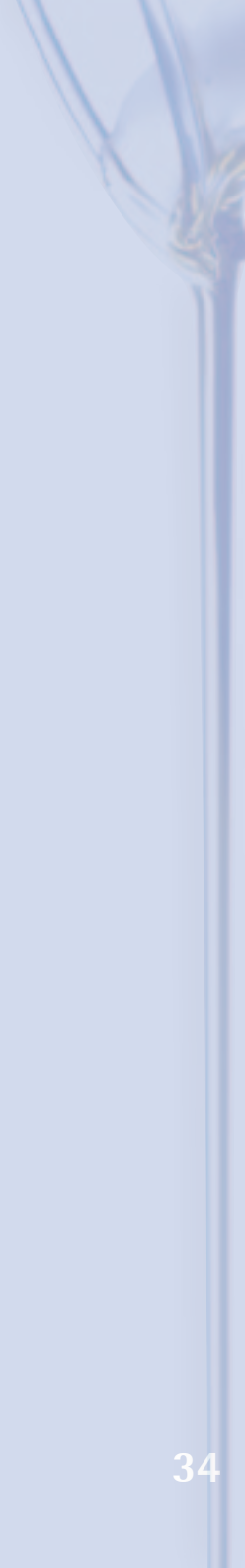
Product	Chemical description	HLB value
Imbentin-C/125/090	POE (9) C12 - C15 Alcohol	13.1
Imbentin-N/63	POE(10) Nonylphenol	13.3
Imbentin-U/080	POE (8) Isoundecanol	13.4
Imbentin-U/080 90%	POE (8) Isoundecanol	13.4
Imbentin-T/090	POE (9) Isotridecanol	13.4
Imbentin-T/090 90%	POE (9) Isotridecanol	13.4
Imbentin-AG/124S/090	POE (9) C12 - C14 Alcohol	13.5
Imbentin-C/91/080	POE (8) C9 - C11 Alcohol	13.5
Imbentin-C/91/080 85%	POE (8) C9 - C11 Alcohol	13.5
Imbentin-ES/100/070 90%		13.5
Imbentin-AGS/55	POE (9) C11-C15 Alcohol	13.5
Hedipin-CFA/100	POE (10) Coconut fatty acids	13.5
Hedipin-PO/120	POE (12) Oleic acid	13.5
Imbentin-T/65	POE (10) Isotridecanol	13.6
Imbentin-T/65 90%	POE (10) Isotridecanol	13.6
Imbentin-O/100	POE(10) Octylphenol	13.6
Imbentin-O/100 I	POE(10) Octylphenol	13.6
Imbentin-C/145/110	POE (11) C14 - C15 Alcohol	13.8
Imbentin-C/145/110 85%	POE (11) C14 - C15 Alcohol	13.8
Imbentin-C/91/080 OFA	POE (8) C9 - C11 Alcohol	13.8
Imbentin-T/100	POE (10) Isotridecanol	13.9
Imbentin-T/100 85%	POE (10) Isotridecanol	13.9
Imbentin-T/100 90%	POE (10) Isotridecanol	13.9
Imbentin-AG/168S/140	POE (14) C16 - C18 Alcohol	14.0
Imbentin-POA/140	POE (14) Cetyl Oleyl Alcohol	14.0
Imbentin-AG/810/080	POE (8) C8 - C10 Alcohol	14.0
Imbentin-AG/100/080	POE (8) Decanol	14.0
Imbentin-C/91/85	POE (9) C9 - C11 Alcohol	14.0
Imbentin-C/91/100	POE (10) C9 - C11 Alcohol	14.0

## HLB value &gt; 15: O/W emulsifiers, detergents, solubilisers

Product	Chemical description	HLB value
Imbentin-E/100/080	POE (8) Isodecanol	14.0
Imbentin-E/100/080 80%	POE (8) Isodecanol	14.0
Imbentin-AGS/35	POE (5) C11-C15 Alcohol	14.0
Imbentin-E/100/090	POE (9) Isodecanol	14.1
Imbentin-AG/124S/110 90%	POE (11) C12 - C14 Alcohol	14.3
Imbentin-U/100	POE (10) Isoundecanol	14.4
Imbentin-AG/168S/150	POE (15) C16 - C18 Alcohol	14.5
Imbentin-AG/100/095 80%	POE (10) Decanol	14.5
Imbentin-AG/100/100	POE (10) Decanol	14.5
Imbentin-E/100/100	POE (10) Isodecanol	14.5
Imbentin-T/115 90%	POE (12) Isotridecanol	14.5
Imbentin-C/125/120	POE (12) C12 - C15 Alcohol	14.5
Imbentin-OA/080	POE (8) Isooctanol	14.6
Imbentin-T/120	POE (12) Isotridecanol	14.6
Kotilen-S/1	POE (20) Sorbitan stearate	14.9
Imbentin-AG/168S/180 G	POE (18) C16 - C18 Alcohol	15.0
Imbentin-POA/180	POE (18) Cetyl Oleyl Alcohol	15.0
Imbentin-N/98	POE(15) Nonylphenol	15.0
Kotilen-O/1	POE (20) Sorbitan oleate	15.0

Product	Chemical description	HLB value
Imbentin-C/91/120	POE (12) C9 - C11 Alcohol	15.3
Imbentin-AG/168S/200	POE (20) C16 - C18 Alcohol	15.4
Imbentin-AG/168S/200 G	POE (20) C16 - C18 Alcohol	15.4
Imbentin-T/150	POE (15) Isotridecanol	15.4
Imbentin-T/150 80%	POE (15) Isotridecanol	15.4
Hedipin-CU/170	POE (17) Coconut oil	15.4
Imbentin-POA/220 E	POE (22) Cetyl Oleyl Alcohol	15.5
Imbentin-AG/124/150	POE (15) C12 - C14 Alcohol	15.5
Imbentin-C/125/150 80%	POE (15) C12 - C15 Alcohol	15.5
Hedipin-R/750 H	POE (75) Castor oil	15.5
Kotilen-P/1	POE (20) Sorbitan palmitate	15.6
Imbentin-AG/168S/250 PEG	POE (25) C16 - C18 Alcohol	16.0
Imbentin-C/125/200	POE (20) C12 - C15 Alcohol	16.0
Imbentin-N/200	POE(20) Nonylphenol	16.0
Hedipin-R/850	POE (85) Castor oil	16.0
Imbentin-AG/168S/250	POE (25) C16 - C18 Alcohol	16.1
Imbentin-AG/168S/250 G	POE (25) C16 - C18 Alcohol	16.1
Imbentin-AG/168S/250 P	POE (25) C16 - C18 Alcohol	16.1
Imbentin-POA/250 6065 E	POE (25) Cetyl Oleyl Alcohol	16.1
Imbentin-AG/124S/200 (1)	POE (20) C12 - C14 Alcohol	16.5
Imbentin-AG/168S/300S G	POE (30) C16 - C18 Alcohol	16.5
Imbentin-AG/168S/300S P	POE (30) C16 - C18 Alcohol	16.5
Imbentin-T/200	POE (20) Isotridecanol	16.6
Imbentin-T/200 80%	POE (20) Isotridecanol	16.6
Imbentin-OA/150	POE (15) Isooctanol	16.7
Kotilen-L/1	POE (20) Sorbitan laurate	16.7
Hedipin-PS/230 G	POE (23) Stearic acid	16.8

Product	Chemical description	HLB value
Imbentin-POA/310 G	POE (31) Cetyl Oleyl Alcohol	17.0
Imbentin-AG/100/200	POE (20) Decanol	17.0
Hedipin-SO/360	POE (36) Soya bean oil	17.0
Imbentin-AG/168S/360 I G	POE (36) C16 - C18 Alcohol	17.2
Imbentin-O/300 70%	POE(30) Octylphenol	17.3
Hedipin-SO/400	POE (40) Soya bean oil	17.3
Hedipin-PS/400 G	POE (40) Stearic acid	17.3
Imbentin-T/300 70%	POE (30) Isotridecanol	17.5
Imbentin-T/400 70%	POE (40) Isotridecanol	17.5
Imbentin-N/300	POE(30) Nonylphenol	17.5
Imbentin-N/300 70%	POE(30) Nonylphenol	17.5
Imbentin-N/350 G	POE(35) Nonylphenol	17.5
Imbentin-N/400 70%	POE(40) Nonylphenol	17.5
Imbentin-N/400 G	POE(40) Nonylphenol	17.7
Imbentin-AG/168S/500 G	POE (50) C16 - C18 Alcohol	17.9
Imbentin-AG/168S/500 P	POE (50) C16 - C18 Alcohol	17.9
Imbentin-O/400	POE(40) Octylphenol	17.9
Hedipin-R/1800 G	POE (180) Castor oil	17.9
Imbentin-T/400 G	POE (40) Isotridecanol	18.0
Imbentin-N/500 E	POE(50) Nonylphenol	18.0
Imbentin-N/600 50%	POE(60) Nonylphenol	18.0
Imbentin-O/400 70%	POE(40) Octylphenol	18.0
Hedipin-R/2000 G	POE (200) Castor oil	18.0
Imbentin-OA/250 70%	POE (25) Isooctanol	18.4
Imbentin-POA/800 G	POE (80) Cetyl Oleyl Alcohol	18.5
Imbentin-AG/168S/800 G	POE (80) C16 - C18 Alcohol	20.0
Imbentin-AG/168S/800 P	POE (80) C16 - C18 Alcohol	20.0



## Kolb documentation

- Nonionic Surfactants
- Emulsifiers, emollients and solubilizers for personal care
- Add value to your textile auxiliaries
- Imbentin-U Series effective alternatives to NPE's and tridecanol ethoxylates
- Imbentin-ES/100/070 90% - efficient low-foaming nonionic surfactant for wetting and cleaning
- Imbentin HSC - dirt can be found on hard surfaces almost everywhere, a new environmentally friendly surfactant system helps to remove it
- As natural as possible - natural fatty alcohols
- Looking for detergent alternatives with Imbentin™
- Imbentin-E/100 range, an alternative to NPE's
- Low-foaming and defoaming surfactants
- Hedimuls™ - technical emulsifiers
- Guide Formulations for household, institutional and industrial applications

## Definitions

Methods for cloud point and cloud index		
	<b>A</b>	1% in deion. H <sub>2</sub> O
	<b>B</b>	5g in 25g BDG 25%
	<b>C</b>	1% in NaCl 10%
	<b>D</b>	5% in BDG 25%
	<b>E</b>	5 g in 20 ml BDG:H <sub>2</sub> O = 4:3
	<b>F</b>	10% in BDG 25%
	<b>G</b>	5% in deion. H <sub>2</sub> O
	<b>H</b>	10% in deion. H <sub>2</sub> O
	<b>I</b>	10% in NaCl 10%
	<b>K</b>	3 g product in 10 ml alcohol (30°C) = ml H <sub>2</sub> O
	<b>L</b>	1% in NaCl 5%
	<b>M</b>	5% in NaCl 10%
	<b>N</b>	2% in NaCl 10%
	<b>O</b>	2% in deion. H <sub>2</sub> O
	<b>P</b>	10% in BDG 50%
	<b>Q</b>	1% in tap water

# Where you can find us:

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